Spring 1994

Patterns of peer relations and adjustment: A longitudinal follow-up study

Mary Louise Hennessy Blum
University of New Hampshire, Durham

Order Number 9506419

Patterns of peer relations and adjustment: A longitudinal follow-up study

Hennessy Blum, Mary Louise, Ph.D.

University of New Hampshire, 1994

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

PATTERNS OF PEER RELATIONS AND ADJUSTMENT: A LONGITUDINAL FOLLOW-UP STUDY

By

M. Hennessy Blum
B.S., University of Maine, 1975
M.S., Hahnemann University, 1981
M.A., University of New Hampshire, 1991

DISSERTATION

Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirement for the Degree of

Doctor of Philosophy

in

Psychology

May, 1994

This Dissertation has been examined and approved.

Dissertation Director
Kathleen McCartney
Associate Professor of Psychology

Victor Benassi
Professor of Psychology

Bruce Mallory
Associate Professor of Education

Sally Ward
Associate Professor of Sociology

Rebecca Warner
Associate Professor of Psychology

5-3-94
Date

DEDICATION

This Dissertation is dedicated to my family:
Jeffrey, Reuben, and My Parents, Doris and Richard.

ACKNOWLEDGEMENTS

I would like to acknowledge the advise and guidance of my committee. I would especially like to thank my advisor and chair of my committee, Kathy McCartney, for her encouragement, patience, and for allowing me the freedom to explore my dreams. I would like to thank Victor Benassi, Becky Warner, Sally Ward, and Bruce Mallory for their helpful discussions and comments on earlier drafts of this dissertation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

ABSTRACT

PATTERNS OF PEER RELATIONS AND ADJUSTMENT: A LONGITUDINAL FOLLOW-UP STUDY

BY

M. HENNESSY BLUM
University of New Hampshire, May, 1994

The risk hypothesis proposes that problematic peer relations predict later maladjustment. Extensive research on the risk hypothesis provides evidence that the quality of peer relations is associated with adjustment. The purpose of this dissertation was to examine the associations, concurrently and across time, among three distinct levels of peer relations (dyadic friendship, small group interactions, and sociometric status) and two perspectives of social/behavioral adjustment as assessed by parents and children. The study showed further support for the risk hypothesis that low peer group acceptance in the classroom, low prosocial non-interactions in the small group, low warmth and high conflict in dyadic friendships were related to problematic adjustment and low self-perception. Moreover, early conflicted friendships were associated with later social competency. Trends also suggested that conflicted friendships were associated with later behavior problems. Additionally, reciprocal effects showed that adjustment was associated, concurrently and across time, with the quality of peer relations.

INTRODUCTION

The purpose of this study is to examine associations, within and across time, between peer relations and adjustment. Developmental researchers view peer relationships as major contributing factors in children's social, cognitive, and behavioral adjustment (Hartup, 1983; 1993; Newcomb, Bukowski, & Pattee, 1993; Parker & Asher, 1987). The risk hypothesis proposes that early peer rejection is predictive of later maladjustment (Parker & Asher, 1987). Yet, peer relationships are complex and occur on multiple levels including two-person friendship, small group relations, and larger group settings such as the classroom (Brown, 1989). Like peer relationships, adjustment is a complex factor in children's development. It includes not only social and behavioral assessments by others but also self-perception assessments. One of the goals of the study is to assess friendship at three levels. Therefore, dyadic friendship, small group interaction, and sociometric status are examined as potentially contributing factors in two aspects of children's adjustment, those assessed by parents as well as by children themselves.

This review of the literature begins with a discussion of the dynamics of friendships, small group relations, and sociometry. Then, a series of peer relations topics are reviewed central to the risk hypothesis. These topics include: (1) behavioral correlates of peer acceptance and

rejection, (2) cognition and social information processing, (3) the risk hypothesis, (4) intervention studies, (5) sex differences and similarities, (6) parental influences, (7) social networks, and (8) socioeconomic status.

I. LITERATURE REVIEW

The Development of Friendship and Group Relations

The formation of peer relationships begins early in life. As early as 3 to 4 months, infants look at and touch each other with peer-directed smiles occurring at 6 months (Vandell & Mueller, 1980). During the preschool years the quality and quantity of peer interaction changes, toddlers engage in both positive and negative behaviors towards peers with friendly social acts predominating (Hartup, 1983). Beginning around 5 years old, children start to have stable friendships that are concrete and activity-based in nature. During middle childhood, friendships are based on intimacy and mutual trust. As children grow older, peer behavior becomes more mature with coordinated interactions, task-oriented play, and problem solving behavior. In early childhood and into adolescence, the school setting becomes a major source for peer contact and involvement.

As children develop relationships with each other, these relationships manifest themselves in children's friendships and group relations. Roopnarine, Adams, and Mounts (1988) argued that peer group acceptance and dyadic friendships are not isomorphic. Although the group relations and friendship behaviors can be similar, they are different forms of peer relations.

Furman and Robbins (1985) suggest that it is important to

distinguish between the different functions that friendship and group relationships provide in studying children's peer relations. Friendship refers to a close two-person relationship, while group relations refer to small and large group formations that emerge spontaneously over time, based on social norms and standards (Hartup, 1983). Friendship and group relations serve different roles or needs in children's lives (Bukowski & Hoza, 1989; Furman & Robbins, 1985; Parker & Asher, 1987). Friendships provide needs based on affection, intimacy, reliable alliance, and enhancement of worth. Peer group relationships provide needs associated with a sense of social inclusion. Brown (1989) outlines three levels of peer relations: dyads, cliques, and crowds (p. 189). Therefore, friendships, small group relations, and large group relations or classroom sociometric status constitute three distinct levels of peer relations with potentially different influences on children's development.

Friendship. Friendships are peer attachments that provide security, serving as a source of companionship, pleasure, and fun (Hartup, 1983, p. 137). Friendship selection is based primarily on two factors, physical proximity and similarities (Epstein, 1989). According to Epstein (1989), physical proximity is essential in order for children to meet, interact, and become friends (p. 166). Once a friendship is developed, proximity while still important, becomes less of a determining factor. Moreover, close and

frequent proximity does not ensure friendship.

Similarities are also important criteria for the development of friendships in terms of (1) physical surface features as well as (2) value-related characteristics (Epstein, 1989, pp. 166-179). The more similar two children are, the more likely they will become friends (Epstein, 1989, p. 178). The physical features like age, sex, and race tend to be initial and superficial cues regarding the degree of similarity between individuals, while deeper levels of similarity like attitudes, values, behavior, and goals are more definitive markers of the endurance of the relationship. Therefore, proximity, surface similarity, and depth of similarities represent progressive stages in the development of friendship. Although closeness and similarities in friendships are generally viewed as supportive and positive, dissimilarities in friendships may have advantages for developing new coping mechanisms in difficult situations and learning about qualities in new friends (Epstein, 1989, p. 176).

In friendship, children have opportunities to experience the positive as well as the negative aspects of social interaction (Hartup, 1993; 1983). Pro-social behaviors are displayed including sharing, giving, and helping. Anti-social behaviors are displayed through fighting, quarreling, and aggressive acts. Hartup (1993) suggests that friendships are based on a series of interactions that are expressed through

agreements and disagreements. Agreements serve as interpersonal rewards or incentives to maintain, enjoy, and confirm friendships, while disagreements represent the boundaries or common ground of the relationship (Hartup, 1993, p. 7). Therefore, the quality of friendship depends not only on the number of agreements displayed through pro-social behaviors, but also on the degree of conflict and the ability of friends to manage conflict.

Small Group Relations. Small group relations refer to a small group of friends and/or non-friends. When members in a small group are all friends, the group is referred to as a clique (Asher & Gottman, 1981). According to Brown (1989), "cliques are interaction-based peer groups" consisting of a small number of friends that 'hang around' together (p. 189). Elementary classroom research by Hallinan (1979) suggests that cliques increase with class size and that classroom characteristics have a small influence on clique formation and stability. Brown (1989) reports that in early middle school there is a rise in clique activity followed by a decrease in clique involvement across adolescence. Clique ties loosen as adolescents' circle of friends broaden with age.

The level of cohesiveness within a group, which can be determined sociometrically, is related to learning outcomes as well as the democratic, friendly, and cooperative nature of the group (Shaw & Shaw, 1962, p. 457). According to Scofield (1960), non-friends spend more time resolving decisions than

friendship groups. Cohesive groups tend to be more cooperative in nature than competitive (Olmsted & Hare, 1978; Phillips & D'Amico, 1956). Furthermore, research findings suggest that cooperative group conditions, in contrast to competitive conditions, tend to promote academic achievement (Johnson & Johnson, 1975), increase perceptions of self-worth, and hasten conflict resolution (Hartup, 1983).

Brown (1989) proposes that small group membership serves to protect and support the young adolescent in complex and changing social structures while growing up. Peer groups also influence norms of behavior with rewards or punishments depending on levels of conformity referred to as peer pressure. Social forces within society influence the types of peer groups and the relationship between groups that develop in early adolescence. Such forces include socioeconomic status, ethnic or racial composition, community values regarding freaks, jocks, etc., and adult involvement (Brown, 1989, pp. 195-197).

The Gang. Another form of small group relations is the gang. A gang is often made up of one or more cliques (Thrasher, 1927/1967). Frederic Thrasher (1927/1967) pioneered classic research on 1,323 gangs in Chicago and formulated the following definition:

> The gang is an interstitial group originally formed spontaneously, and then integrated through conflict. It is characterized by the following types of behavior: meeting face to face, milling, movement through space as a unit, conflict, and planning. The result of this collective behavior

> is the development of tradition, unreflective internal structure, esprit de corps, solidarity, morale, group awareness, and attachment to a local territory. (p. 46)

Furthermore, according to Thrasher (1927/1967), gangs are powerful sources of social affiliation allowing boys to create unique societies tailored to their unmet needs. Membership in a gang offers excitement and thrills unmatched by adult society.

Gang involvement is predominately an adolescent phenomenon, ranging in years from ten to thirty (Huff, 1989, p. 526). Therefore, gangs are transitional groups from childhood to maturity. Gang activity is predominately the domain of boys (Huff, 1989; Thrasher, 1927/1967). Although female involvement may be on the rise, girls tend not to be gang members. Huff (1989) reports that more than 90% of gang membership is male (p. 526). Occasionally, when a girl does become a member, she "takes on the role of a boy and is accepted on equal terms" (Thrasher, 1927/1967, p. 158). Female gangs that do appear are more like 'groupies' whose identities are tied to male gang allies (Huff, 1989, p. 526).

In Robins' (1966) 30 year longitudinal follow-up study on 524 child guidance clinic patients, gang activity in childhood is not predictive of later sociopathic personality in adulthood (p. 189). Gang membership and severity of mental illness are related to socioeconomic class. Fifty-three per cent of lower socioeconomic boys from the slums belonged to a gang, while only 26% of upper class boys from better

neighborhoods belonged to a gang (Robins, 1966, p. 189-190). Interestingly, better neighborhood gangs consisted of severely antisocial boys, whereas in the slums only half of the members were diagnosed as antisocial.

Sociometry. Group relations can be conceptualized in terms of small group relations, such as gangs or cliques, or larger groups, such as an entire classroom. Brown (1989) refers to large group relations as the crowd level of peer relations. Crowds are "reputation-based peer groups" (Brown, 1989, p. 190). The classroom setting is a popular source for larger group research (Hartup, 1983). Assessments of group dynamics are often made in terms of dominance hierarchies. As early as nursery school, classroom studies indicate that preschoolers engage in dominance hierarchies with attack-submission exchanges and threat-submission behavior during play (Strayer, 1980; Strayer & Strayer, 1976). These dominance hierarchies are determined by patterns of dyadic domination and submission exchanges demonstrated by children across their social networks. For example, the position of a first-ranking child within a classroom is based on his or her degree of dominating behavior (attacks or threats) over particular classmates who then in turn are dominating over others lower in the hierarchy (Strayer, 1980, p. 174-175). Dominance hierarchies continue into early and middle childhood with social skills and academic ability (Hartup, 1983, p. 149). In adolescence, athletic ability, sexual maturity,

leadership skills, intelligence, and likability are the main determining features of group social power (Hartup, 1983, p. 151). Interpretations of group dominance or social power is often made based on the theory of sociometry. Moreno (1934) developed the concept of sociometry, peer acceptance and rejection, primarily in the school setting. According to sociometric technique, children make nominations of classmates that are liked the most. Advances in sociometry lead to the inclusion of negative nominations of classmates liked the least (Gronlund, 1959). The resulting pattern of liked most and liked least nominations determines each child's social status or sociometric status. Sociometric status groups include popular (large number of liked most choices), rejected (large number of liked least choices), neglected (few choices), controversial (combination of like most and liked least choices), and average (Coie, Dodge, Coppotelli, 1982; Hartup, 1983).

Regardless of the size of the group, social power is distributed differentially within any particular group (Hartup, 1983, p. 148). Members vary in their social power or dominance within a group. Perhaps this division of power serves an adaptive function within groups. Division of leadership and social roles may serve to manage group resources such as food, to improve problem-solving, and to modulate intense emotions such as aggression. The findings of Savin-Williams (1979) support the adaptive function of

dominance hierarchies with the tendency of aggressive behavior to decrease over time in stable groups.

Behavioral Correlates of Peer Acceptance and Rejection

Behavioral Antecedents. Among social developmental researchers, there is a consensus that peer interactions are associated with peer acceptance and rejection (Asher & Coie, 1990; Newcomb, Bukowski, & Pattee, 1993; Parker & Asher, 1987). Three short-term longitudinal studies offer behavioral evidence to suggest a possible causal relationship (Coie & Kupersmidt, 1983; Dodge, 1983; Dodge, Coie, Pettit, & Price, 1990) between peer interactions and peer acceptance. These studies observed the development of social status in boys' groups over time through peer interactions in the groups.

The approach used to identify behavioral determinants of sociometric status in these longitudinal studies is referred to as the contrived play group procedure (Dodge et al., 1990, p. 1289). According to this procedure, the social positions of children are observed as they spontaneously emerge, over time, in small play groups. In Dodge's (1983) study, unacquainted second-grade boys met together in groups of 8 boys for 8 play sessions over a period of two weeks. Boys' behavior, over time, showed that aggressive, acting out, and negative interactions correlate with peer rejection, while cooperative, non-aggressive, and positive interactions in the group correlate with peer acceptance (Dodge, 1983). In Coie and Kupersmidt's (1983) study, familiar and unfamiliar fourth-

grade boys of varied social status (popular, rejected, neglected, and average) met together in groups of 4 boys for 6 play sessions over a period of six weeks. Sociometric status in the contrived groups correlated with previous sociometric status in the classroom (Coie & Kupersmidt, 1983). A current study by Dodge et al. (1990) also using the contrived play group procedure found that two patterns of behavior, aggression and lack of social participation, related to social rejection by peers (p. 1307), while behavioral displays of positive, happy affects with tendencies to engage in dyadic relationships characterized popular boys. In these three studies, raters coded each boy's behavior during the play groups. At the end of the groups, boys completed the sociometric interview to assess social status. The findings suggest that cumulative peer group interactions by members are the behavioral antecedents of social status positions.

These findings are consistent with correlational studies that find quality and nature of peer interactions to be important factors in peer acceptance (Marshall & McCandless, 1957; Masters and Furman, 1981). In an early study, Marshall and McCandless (1957) recorded children's play interactions with peers and derived friendship indices (p. 150). Observed frequency, friendly peer interactions, and friendship selection positively correlated with sociometric ratings derived from sociometric interviews. Furthermore, Masters and Furman (1981) found that peer group acceptance is related to

specific interactions with other children, not general social behavior (p. 349). Popularity is not determined by a child's general overall behavior towards others. Instead, popularity is based on specific behavioral exchanges between individual children. Therefore, the reputation that children develop in the group setting evolves from specific dyadic relationships. Similar to the findings of Masters and Furman, Ladd and Price (1987) found that both the quality of dyadic peer relationships and the range of children's peer contacts predict children's later social reputation in the larger peer group (p. 1185). The social history and patterns of positive or negative interactions with peers seem to influence children's social status.

Behavioral Typology. In a landmark study on sociometry, Coie, Dodge, and Coppotelli (1982) identified that socially preferred peers are rated by peers as cooperative, supportive, physically attractive, undisruptive, and non-aggressive (p. 557), while least liked peers are rated by peers as disruptive, aggressive, short-tempered, and got into trouble with the teacher (p. 560). As mentioned earlier, negative antisocial behaviors observed by adult coders are related to peer rejection, while positive prosocial behaviors are related to peer acceptance (Coie, Dodge, & Kupersmidt, 1990; Coie & Kupersmidt, 1983; Dodge, 1983). Therefore, both peers and adult observers are reporting the same behavioral correlates of sociometric ratings of peer rejection and acceptance.

But are there specific behavioral correlates of social status across studies? If so, what are the magnitudes of effect size estimates for behavioral correlates of sociometric status? A current meta-analytic review by Newcomb, Bukowski, and Pattee (1993) of the sociometric differences in children's peer relations over the past decade showed that three global categories of behavior distinguish children in different sociometric groups: aggression, sociability, and social withdrawal (p. 101). Newcomb et al. (1993) chose the three global categories of behavior based on previous research that these social factors cluster together (Bower, 1969; Masten, Morison, & Pelligrini, 1985; Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976, as cited on p. 102). A total of 41 studies met the inclusion criteria, which included peer nominations of social status, a comparison group of average status peers, and elementary school age subjects.

For the 41 studies, comparisons of the magnitude of effect size estimates are reported for aggression, sociability, and social withdrawal between rejected children and popular children (Newcomb et al., 1993, p. 114). Aggression effect size estimates are a positive high moderate correlation for rejected children and a negative small correlation for popular children. Sociability estimates are a negative small correlation for rejected children and a positive small correlation for popular children. Social withdrawal estimates are a positive small correlation for

rejected children and a negative small correlation for popular children. All effect size estimates excluded outliers and probability levels were highly significant, $p < .001$. Overall, effect size estimates ranged from small to moderate for behavioral correlates of rejected and popular children.

These findings provide quantitative assessments of children's peer relations in different sociometric status groups (Newcomb et al., 1993, p. 99). The direction of effects are consistent across behavior; peer acceptance positively correlates with the positive index of sociability, while peer rejection positively correlates with the negative indices of aggression and withdrawal.

Cognition and Peer Rejection

There is a substantial body of research that shows an association between cognitive abilities and social status (Almack, 1922; Hardy, 1937; Glidewell, Kantor, Smith, & Stringer, 1966; Roff et al., 1972; Ide, Parerson, Haertel, & Walberg, 1981). In a 1966 literature review, Glidewell, Kantor, Smith, and Stringer identified 30 studies that reported a relationship between intelligence and social acceptance. Later, Green, Forehand, Beck, and Vosk (1980) found that children with high scholastic competence had positive interactions with peers and were socially preferred by peers. A quantitative analysis of the literature by Ide, Parerson, Haertel, and Walberg (1981) showed that peer relations are associated with four educational outcomes:

standardized achievement tests, course grades, educational aspirations, and occupational goals. An effect size estimate shows a positive small median correlation for the relationship between educational outcomes and peer relations (Ide et al., 1981, p. 472). Additionally, a recent study by Ladd (1990) found that making new friends early in the school year is related to later school performance, while early peer rejection is predictive of poor school performance (p. 1081).

In the Newcomb et al. (1993) meta-analysis, the category of cognitive abilities was added on as a fourth area in the typology of behavioral constructs (p. 101). Comparisons of the magnitude of effect size estimates for cognitive abilities are a negative moderate correlation for rejected peers and a positive small correlation for popular peers (Newcomb et al., 1993, p. 114). The effect size estimates excluded outliers and probability levels were highly significant, $p < .001$. The effects between cognitive abilities and sociometric status are stronger for rejected children, than for popular children. In terms of the direction of effects, peer rejections is negatively associated with cognitive ability, while peer acceptance is positively associated with cognitive ability.

Social Cognition and Peer Relations. A current approach to the study of children's peer rejection focuses on information processing and social cognition theories (see Hymel, Wagner, Butler, 1990, for review). The phenomenon of peer rejection may be the result of children's reputational

biases in the interpretation of social cues (Cillessen, Ferguson, van Lier, & Hoeben, 1987; Dodge, 1986; Hymel et al., 1990; Price & Dodge, 1989). Price and Dodge (1989) advocate a transactional model to help children at-risk. Price and Dodge (1989) refer to this approach as the reciprocal influence model of child-peer transactions. In this transactional model, negative processing patterns are cyclical in nature and they reinforce peer rejection. According to this perspective, children initiate and maintain social status roles through group and individual processes. As children interact, social cues are exchanged within the group. Individual children interpret social cues and react through their behavior. Biases in the interpretation of social cues occur and create negative processing patterns between individuals. Over time, these negative processing patterns become reinforced contributing to negative peer status for specific individuals. Price and Dodge (1989) maintain that biases and negative processing patterns within both the rejected peer and the peer group must change in order to improve peer acceptance.

Rogosch and Newcomb (1989) suggest that negative social reputations are not only based on the behavior of rejected children but also on social cognitive development of other peers' perceptions (p. 609). Overall, peers' perceptions of rejected children's social reputations accounted for most of the variance in sociometric status. Rejected children are

viewed as consistent and stable in their negative behavior as a result of peers' social and cognitive limitations rather than actual consistency of negative behaviors of rejected children. Rogosch and Newcomb conclude that both peers attitudes as well as rejected children's behaviors are contributing factors to the phenomenon of peer rejection.

A current longitudinal study by Olson (1992) offers evidence in support of a transactional process in patterns of peer rejection in preschool. Rejected boys initiated socially aversive exchanges with peers, who did not reciprocate with aggression in the beginning of the school year (Olson, 1992, p. 327). By the end of the school year, peers actively responded with counteraggression to rejected boys, whose aggression became reactive (Olson, 1992, p. 327). This study is an example of the reciprocal influence model of child-peer transactions proposed by Price and Dodge (1989) with both negative and reactive patterns of behavior contributing to peer rejection.

The Risk Hypothesis

Impetus of Early Studies. Longitudinal studies on social adjustment suggest that children's problematic peer relationships are predictive of later maladjustment in adolescence and adulthood (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Parker & Asher, 1987; Roff, Sells, & Golden, 1972; Roff & Wirt, 1984). In a classic study by Roff, Sells, and Golden (1972), peer rejection in early elementary school

predicted later juvenile delinquency as documented in city files of court records. In this four year follow-up study, boys with low peer acceptance in elementary school were more likely to have criminal involvement with the police and court system of Minnesota in preadolescence. Later in a 1984 follow-up of the Roff et al. 1972 sample, Roff and Wirt found further evidence for a predictive relationship between peer relations and adjustment. For low status boys, childhood aggression emerged as the best predictor of later adult delinquency. In another study by Cowen, Pederson, Babigian, Izzo, and Trost (1973), children identified as vulnerable in early elementary school developed psychiatric problems in early adulthood. This thirteen year follow-up study showed that sociometric ratings by peers was the best predictor of later psychiatric difficulties. These early studies on children's peer rejection initiated a major research effort in developmental and clinical psychology to help rejected children improve their current and long-term development (Asher, 1990).

Research on the Risk Hypothesis. In social development literature, the predictive association between early problematic peer relations and later maladjustment is referred to as the at-risk premise or the risk hypothesis (Parker & Asher, 1987, pp. 357-377). The risk hypothesis proposes causal links between the quality of peer interactions and later social competencies. In Parker and Asher's (1987) risk

literature review using extensive follow-back and follow-up data analyses, they find empirical support for a 'predictive' association between peer rejection (sociometric in nature) and later juvenile and adult adjustment in terms of school drop out rate, criminality, and psychopathology. Two specific risk factors in peer relations, low peer acceptance and aggressiveness, were associated with adjustment problems later in life. Low acceptance is predictive of school drop out rate, while aggressiveness is predictive of later criminality (Parker & Asher, 1987, p. 377). Overall, there is evidence in the risk literature to suggest that the direction of effects for the at-risk premise begins with early problematic peer relations. The quality of early peer relations is predictive of later social and behavioral adjustment.

Aggression and Peer Rejection. In a current review of the risk literature, Kupersmidt, Coie, and Dodge (1990) present novel findings regarding peer rejection and aggression from recent unpublished follow-up studies (Coie, Lochman, Terry, & Lee, 1987; Kupersmidt & Coie, 1985; Kupersmidt, 1983). For example, Kupersmidt and Coie (1985) assessed the relative importance of fifth grade peer aggression and peer rejection on delinquency and school drop out rate after high school graduation (as cited in Kupersmidt et al., 1990, p. 295). Aggression in the fifth grade was the best significant predictor of both later delinquency and dropping out of school, while both aggression and peer rejection were

predictors of overall negative outcomes. The Coie et al. (1987) longitudinal study found that peer rejection was the best predictor of initial adjustment to middle school, while both rejection and aggression were predictive of later middle school adjustment in fourth grade (as cited in Kupersmidt et al., 1990, p. 296). These findings suggest that peer rejection and aggression account for different types of adjustment outcomes.

Current longitudinal studies also find that early peer rejection and aggression are primary predictors of later maladjustment (Coie, Lochman, Terry, & Hyman, 1992; Hymel, Rubin, Rowden, & LeMare, 1990). Coie et al. (1992) found that both early aggression and peer rejection in third grade predicted later maladjustment in early adolescence with sex as a moderator of peer rejection (p. 783). Aggression and peer rejection made unique contributions to children's adjustment as rated by parents, self-reports, and teacher ratings of school adjustment. In the Hymel et al. (1990) study, low peer acceptance and aggression in second grade were related to externalizing (acting out behaviors) problems in fifth grade, while negative social self-perceptions in second grade were associated with continued negative social self-perceptions in fifth grade (pp. 2018-2019). Effect size estimates for these associations were small to moderate. Overall, peer, self, and adult ratings showed that early aggression and peer rejection are associated with later adjustment.

Furthermore, children who are both aggressive and rejected by peers may be at the highest risk for later maladjustment. Research evidence reveals that aggressive-rejected children are the most numerous of the rejected children, about 50% (Cillessen, van IJzendoorn, van Lieshout, & Hartup, 1992, p. 903). According to Cillessen et al. (1992), over time, aggressive-rejected children tend to remain rejected by peers, whereas shy-rejected and other types of rejected children, over time, tend to change sociometric status to average or popular groups (p. 902-903).

Although researchers consistently find that peer rejection and aggression are associated with adjustment, a third variable, such as submissive behavioral style within the peer group, may also be related to adjustment outcomes. For example, Schwartz, Dodge, and Coie (1993) find that early submissive or nonassertive behavior is predictive of peer victimization over time. Using the contrived play group procedure, Schwartz et al. identified chronic victimization by the peer group in a sample of nonaggressive African-American boys. The victims displayed nonassertive and socially incompetent behavioral patterns. These findings suggest that the behavioral style of children at high risk for maladjustment include not only highly aggressive individuals, but also nonaggressive and submissive individuals as well.

Peer Relations and Adjustment: Insiders' and Outsiders' Views. Assessments of children's adjustment tend to be

measured either by standardized adjustment scales, or by mental health and criminal records. For example, recent correlational studies on peer relationships find an association between peer social status and behavioral adjustment using a standard assessment measure, the Child Behavior Checklist (French & Waas, 1985; Hennessy Blum, 1991). French and Waas (1985) and Hennessy Blum (1991) found that rejected children were rated by parents on the Child Behavior Checklist (Achenbach & Edelbrock, 1983) as at-risk for behavior problems. Early longitudinal studies found that rejected children developed behavioral problems as assessed by psychiatric records from county psychiatric register (Cowen et al. 1973) or by juvenile delinquency files (Kupersmidt & Coie, 1985; Roff et al., 1972; 1984). All of these assessments come from the perspective of others, outsiders' views. This outsider perceptive on children's competencies is the predominant assessment approach in the risk literature (Parker & Asher, 1987).

Another way to conceptualize adjustment is in the form of children's perceived self-esteem or self-perception. Hales (1979) finds boys' self-esteem, but not girls, is related to peer relations. Hartup (1983) suggests that the relationship between peer relations and self-esteem is not well understood. Children's perceptions are often ignored in the risk literature (Parker & Asher, 1987, p. 383), research needs to focus on adjustment as assessed by one's self as well as by

others. In a current study, Schweitzer, Seth-Smith, and Callan (1992) identified that self-concept and adjustment are inextricably linked (p. 83).

Peer Relations and Self-Perception. Wylie's (1979) literature review on the association between peer relations and self-concept for correlational studies showed that a small but significant association emerged with sociometric status accounting for 4% of the variance in self-concept (as cited by Bukowski & Hoza, 1989, p. 35). In the Bukowski and Hoza (1989) review of the research on peer relations and self-concept, they found that peer relations are almost entirely operationalized in terms of peer group acceptance (p. 35). As they note, Mannarino's (1978) study on chumship and self-esteem is an exception to this trend. Mannarino found that boys with a chum relationship had higher self-esteem, than boys without a chum relationship.

Studies that incorporate assessments of friendship, peer group relations, and self-esteem may provide greater insight into the reciprocal processes active in the relationship between peer relations and self-concept (Bukowski & Hoza, 1989; Hartup, 1983, p. 134). Recent studies have begun to incorporate both friendship and peer group relations as potential predictors of self-concept. Preliminary analyses by Bukowski, Hoza, and Newcomb's (1987) of their on-going longitudinal study showed that friendship quality, within time, and sociometric status, across time, are significant

predictors of children's perceived social competence and self-concept (as cited by Bukowski & Hoza, 1989, pp. 37-38). Therefore, Bukowski et al (1987) suggest that both friendship and popularity make differential contributions to self-concept.

Dyadic Friendship and Peer Acceptance as Predictors of Psychological Adjustment. The findings of two current studies also suggest that dyadic friendship and peer group acceptance are associated, within and across time, with self-concept and other aspects of psychological adjustment (Townsend, McCracken, & Wilton, 1988; Vernberg. 1990). In a simultaneous investigation of popularity and intimacy in adolescent friendship by Townsend et al. (1988) showed that intimacy in friendship, rather than peer group popularity, was predictive of self-esteem and sex-role orientation (pp. 421-431). Townsend et al. (1988) propose that "psychological adjustment in early adolescence is more dependent on having a close relationship with a peer than on being relatively popular with a number of peers (p.431)."

Vernberg (1990) found that there are reciprocal relationships and buffering effects between three types of peer experiences (best friend intimacy, peer rejection, and amount of peer contact) and two indices of psychological adjustment (self-perceived social acceptance and depressive affect). Using analysis of partial variance, causal analyses tested both sets of peer experience and psychological

adjustment variables as predictors and outcome variables to assess reciprocal effects. According to Vernberg (1990), "the Time 1 score on the criterion variable was partialed out of the Time 2 score as a first step in each analysis. The analytic task was to account for variance in the criterion variable at Time 2 beyond that attributable to initial score on the that variable (pp. 191-192)." Vernberg's (1990) results showed that peer experiences in combination at time 1 accounted for 13.6% of the partialed variance in depressive affect at time 2, while depressive affect at time 1 accounted for 8.7% of the partialed variance in time 2 peer rejection and a trend for the effect of time 1 depressive affect on time 2 amount of peer contact (pp. 194- 195). This bidirection of effects suggests reciprocal relationships between distinct levels of peer relations and adjustment. In addition, Vernberg's (1990) findings showed that the interaction of friendship intimacy x peer group rejection at time 1 accounted for 6.3% of the partialed variance perceived social acceptance at time 2. This interaction suggests that friendship buffers peer rejection because as closeness in dyadic friendship increased, peer group rejection decreased.

In summary, longitudinal studies on the association between peer relations and adjustment provide empirical evidence to support, in part, a causal relationship for early problematic peer relations to predict later maladjustment. In addition, this relationship may have reciprocal effects with

early maladjustment being predictive of later problematic peer relationships. Aggression and peer rejection appear to be primary predictors of later maladjustment, while close friendships serve to buffer the effects of peer rejection and enhance self-esteem.

Intervention for Children 'At-Risk'

Social skills training and intervention programs for children at-risk provide researchers with opportunities to test experimentally the risk hypothesis beyond correlational designs (Parker & Asher, 1987, p. 384). Longitudinal studies for at-risk children that show improved peer acceptance resulting in long-term positive adjustment would give greater support to the causal model of problematic peer relations and later maladjustment (Kupersmidt et al., 1990). The impetus for research in social skills training was in response to the findings of risk literature (Ladd & Asher, 1985, p. 220) that early peer rejection is predictive of later maladjustment.

The overall success of early intervention studies for improving peer group acceptance and adjustment are inconclusive; results are mixed (see Coie & Koeppl, 1990; Hymel, Wagner, & Butler, 1990, for reviews). Some children improved, while others did not. Increased peer acceptance did not necessarily lead to improvements in adjustment and improvements in adjustment did not necessarily lead to increased peer acceptance. These conflicting results may be due to the approaches and strategies used in attempts to

enhance peer acceptance and social skills. Early intervention studies focused on trying to improve peer relations by increasing children's frequency of peer interaction (Coie & Koeppl, 1990). Simply increasing frequency of peer interactions was not sufficient to make lasting improvements.

One early study by Oden and Asher (1977) did show long-term improvements in peer group acceptance. Oden and Asher (1977) set up three coaching conditions where 33 low peer accepted children participated in dyadic play with an average peer accepted child. In the first condition, the coached condition, children received coaching on how to play and improve peer interaction. In the second condition, peer-pairing condition, children were paired with another child and played together without coaching. In the third condition, control condition, children went to a room with another child but played separately without adult coaching. In each condition, the target (isolated child) was coded for task participation and social orientation by trained observers.

At the end of a 4-week training period, only children in the coached condition had significant gains in sociometric status. Later at a one year follow-up assessment, the children in the coached condition continued to improve in peer group acceptance. Surprisingly, no significant behavioral differences were found in the coached children during play sessions. Therefore, gains in social acceptance did not correlate with gains in social skills.

It was not until Bierman's (1986) study that social skills training produced both gains in social skills and gains in social acceptance with a moderate partial correlation between social skills and acceptance. Bierman (1986) combined coaching in small groups with a highly engaging group activity with children making videotaped movies of themselves. The children were told that the film was for university students to see how friends talked and played together (Bierman, 1986). Therefore, the video filmmaking activity motivated and fostered cooperative play, positive peer responses, social prestige, and provided a feedback mechanism about children's interpersonal behavior (Bierman, 1986).

Price and Dodge (1989) propose that intervention studies use a social information processing approach to improve children's social status by directly modifying "peers' negative perceptions" (p. 349). As outlined earlier, Price and Dodge advocate a transactional model to help children at-risk. Intervention strategies need to be directed at both the target rejected peer and his or her peer group. Peer rejection exists within the peer group. The cure is within the system not the individual according to the reciprocal influences model. Therefore, experimental intervention studies that incorporate coaching, motivation, positive peer interaction, and a feedback mechanism provide the best empirical evidence to test and confirm the risk hypothesis.

Sex Differences

Peer Interactions and the Sexes. Research findings on peer relations and adjustment suggest that there are sex-related patterns with peer rejection and maladjustment occurring to a greater extent in boys than girls (Kupersmidt et al., 1990). For example in the Cowen et al. (1973) study, boys exceed girls in incidence of reported behavior problems. In Hennessy Blum's (1991) study, the effect sizes are moderate for boys, while for girls effect sizes are small for associations between peer relations and adjustment. Moreover, boys' dyadic friendships and peer group relationships are related to social, school, and behavioral competence, while girls' peer relations are primarily related to behavioral adjustment (Hennessy Blum, 1991). Research on children's interaction patterns indicate that girls are more intimate with friends than boys (Furman & Buhrmester, 1985; Gavin & Furman, 1989; Hunter & Youniss, 1982; Sharabany, Gershoni, Horman, 1981), while boys interact with more peers (Eder & Hallinan, 1978; Tietjen, 1982) and play in larger groups than girls (Ladd, Price, & Hart, 1990).

Differences Inaccessible. Despite evidence suggesting sex differences in children "at-risk", the findings, overall, are inconclusive because adequate data are not reported in the risk literature to discern sex differences (Kupersmidt et al., 1990). For example, the longitudinal study of Roff et al. (1972) on the predictive nature of peer rejection on later

delinquency is based exclusively on a sample of only elementary school-aged boys. There were no "comparable groups of girls" included in the Roff et al. (1972) study (p. 150). According to the Newcomb et al. (1993) meta-analysis, there are three reasons for inconclusive findings regarding sex differences: (1) investigators report "very few significant gender differences", (2) many designs "include only boys as subjects", (3) "separate data for boys and girls" is inaccessible in risk literature studies (p. 103). Therefore, Newcomb et al. (1993) were not able to test gender as a potential moderator variable in the meta-analysis.

Roff and Wirt (1984) find that regardless of sex, the risk of later delinquency increases with decreasing peer status (p. 124). Although the effects size estimates differ between the sexes, moderate for boys and small for girls, dyadic friendship and peer group acceptance are related to adjustment for both sexes (Hennessy Blum, 1991). Therefore, regardless of potential sex differences, the at-risk premise appears to have an impact on girls as well as boys.

Social expectations by society, our culture, parents, and school systems may influence the types of relationships children form with their peers. Boys may be encouraged to be more active in groups such as team sports, while girls may be encouraged to be more intimate with selected friends in preparation for childbearing. These apparent sex differences may be the effects of socialization and/or hormonal variations

in males and females.

Parental Influences and Peer Relations

Attachment Theory. Parental factors in combination with peer relationships may also influence children's social and behavioral adjustment. Attachment theory proposes that the relationship between the infant and the parent (Ainsworth, 1972; Bowlby, 1969) serves as the primary guide for all future relationships (Freud, 1949). According to Bowlby (1969), internal working models develop for all types of relationships through the initial relationship between child and parent. From this point of view, peer relationships are extensions of internal working models of early child-parent attachment. Child-parent attachment could be seen as the primary predictor in social and behavior adjustment. Research evidence supports the predictive association between quality of attachment and later adjustment (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989; Sroufe, 1983; 1990). Early attachment quality for boys is related to later behavioral adjustment (Renken et al. (1989), while for girls early attachment is related to social adjustment (Sroufe, 1990).

Parenting Styles. Another theory that may account for early child-parent relationship affecting adjustment is Baumrind's (1971) conceptualization of parental authority styles. According to her approach, there are three classic styles of parenting: authoritarian, permissive, and authoritative (Baumrind, 1971). Each style differs in two

dimensions: parental nurturance and parental control. Research findings of Baumrind (1977, as cited in Shaffer, 1990, p. 573) suggest that boys and girls qualities of competence vary depending on the parental style used. Authoritarian parenting, low nurturance and high control, is predictive of low to average cognitive competencies for boys and average social and cognitive competencies for girls. Permissive parenting, high nurturance and low control, is predictive of low social and very low cognitive competencies in boys and low social and cognitive competencies in girls. Authoritative parenting, high nurturance and moderate control, is predictive of high social and cognitive competencies in boys and very high social and cognitive competencies in girls. Therefore, two aspects of parenting, attachment quality and parenting style appear to influence children's social and behavioral adjustment.

Alternatively, parental influences and peer relationships may be independent phenomena (Lamb & Nash, 1989; Lewis & Rosenblum, 1975), providing for different needs in social and behavioral development. Parents and other adults are instrumental in offering care, affection, protection, dependency need, and external controls (Lewis et al., 1975; Hartup, 1983). Peers are instrumental in offering mutual socialization, affiliation, play, conformity, and role identity. Most likely, interactions exist between parental influences and peer relationships with both contributing to

social and behavioral adjustment.

Current research suggests that both parenting styles and peer group dynamics are primary contributing factors in adolescents' school competence. Steinberg, Dornbusch, and Brown (1992) conducted a study on ethnic differences in high school students' academic achievement and the support students receive from parents and peers. They found that White-American, Hispanic-American, Asian-American, and African-American adolescents received different combinations of parental and peer support for academic success. White adolescents benefit from a combination of authoritative parenting and peer support, Hispanic adolescents suffer from a combination of parental authoritarianism and low peer support, Asian-American adolescents' peer support offsets parental authoritarianism, while African-American adolescents' low peer support undermines authoritative parenting support (Steinberg et al., 1992, p. 723). Steinberg et al. (1992) conclude that adolescents' academic achievements benefit most when both parents and peers are highly supportive (p. 727).

Social Factors Affecting Peer Relations and Adjustment

Social Networks. An original intent of Moreno's (1934) work on sociometry was to intervene in problematic peer relationships by first assessing the quality of an individual's social atom. According to Moreno (1934), a social atom, often depicted pictorially, includes all the important relationships in the life of a particular person.

After the constellation of relationships for a given person is determined, adjustments can be made in the life space of the person's daily living. For example, the child's seating and work areas can be rearranged next to a preferred peer or increased contact can be made to a favorite aunt, grandparent, or neighbor. Social network theory suggests that all relationships in the social environment may significantly contribute to children's adjustment (Furman, in press; Furman & Buhrmester, 1985; Ladd, Price, & Hart, 1990).

The family and neighborhood relationships may be major influences that may even compensate for difficulties with parents and peers. East and Rook (1992) propose that the support of siblings and friends outside of school may compensate, in part, for unsatisfying school peer relationships (p. 163). They examined peer isolated and peer aggressive sixth grade children. Isolated children depend on favorite siblings for social support resulting in lessened socioemotional difficulties, while high support from a favorite sibling for aggressive children resulted in greater anxiety (East & Rook, 1992, p. 170-171). The findings showed that both isolated and aggressive children receive social support outside the school setting.

Friends, small peer groups, and the large classroom group are all important relationships in children social networks. But, peer relations are not the only sources of social support for children. The social support of siblings, the extended

family, and community relationships may significantly contribute to children's overall adjustment and positive self-perceptions.

Socioeconometry. In addition to neighborhood relationships as potentially important predictors of adjustment, the wealth or poverty of the neighborhood may be a factor as well. Moreno (1934) in his early work in sociometry suggested that sociometric principles could be applied to economic forces within society. The terms socioeconometry and socioeconomic sociometry (Hart, 1971) refer to the theory that sociometric status and socioeconomic level may be correlated (Blake & McCanse, 1989, p. 153).

Socioeconometry proposes that the individuals in the higher economic class will have higher social status (Blake & McCanse, 1989). From this perspective, socioeconomic status may be a predictor of adjustment and self-concept. For example, Leelavathi and Saroja (1989) found that high socioeconomic status adolescents had better overall adjustment compared to low socioeconomic status adolescents, while the majority of low status adolescents had poor overall adjustment.

According to the Coleman (1966) report, middle class families are the socioeconomic group primarily responsible for maintaining academic quality in schools. It is through middle class work ethics that education is valued in our society. Leelavathi and Saroja (1989) propose that middle class values

restrict the low socioeconomic status students. They are made to feel inferior by other socioeconomic groups and are treated as second class citizens by teachers, employers, police, courts, welfare agencies, and housing authorities (Leelavathi & Saroja, 1989, p. 6)

In Robins' (1966) 30 year longitudinal study, an association between socioeconomic status and adjustment is not fully supported. When children's as well as fathers' antisocial behavior and fathers' antisocial diagnoses are controlled for, socioeconomic status was not predictive of later sociopathic personality. As mentioned earlier, Robins did find that gang membership and severity of sociopathology were related to socioeconomic status.

It is not clear from the risk literature (Parker & Asher, 1987) whether socioeconomic status affects the association between peer relations and later adjustment. For example, Roff et al. (1972) found "that the relationship between earlier peer status (in elementary school) and delinquency (in junior high and high school) was not the same at different socioeconomic levels: at the upper and middle levels, delinquency tended to occur in boys who had been rejected by other boys, and there was almost no delinquency among the high-choice boys. At the lowest level, delinquency unexpectedly occurred with about equal frequency among the most-rejected and the best-liked boys (p. 180)." A later follow-up study of the Roff et al. 1972 sample showed that

socioeconomic status was not predictive of adult delinquency (Roff & Wirt, 1984). Many studies do not report socioeconomic status or control for differences in family income levels. Wylie's (1979) literature review on the association between socioeconomic status and self-concept found that a majority of investigations using the Rosenberg Self-Esteem Scale report null findings and the partial correlations are extremely small for researchers that do report significant findings. The often alleged positive association between self-concept and socioeconomic status was not supported in Wylie's (1979) study overall; the direction of the association varied with positive, negative and null relationships reported. Overall, the effects of socioeconomic status on adjustment are inconclusive.

Hypotheses

The present study tests two hypotheses. The first hypothesis is that peer relations in the form of dyadic friendship, small group relations, and large group sociometric status will all be associated with social and behavioral adjustment and self-perception in fourth and fifth graders. The second hypothesis is that the quality of both dyadic friendship and large group sociometric status in second and third graders will predict later social and behavioral adjustment in the same children in the fourth and fifth grades. Therefore, the study examines (1) the concurrent associations between peer relations and adjustment in the

fourth and fifth grade children, and (2) the associations of early peer relations on later adjustment over a two year period.

Hypothesis 1. The first hypothesis involves two predictions. First, all three levels of peer relations in the form of dyadic friendship, small group relations, and classroom peer group acceptance are expected to be associated with concurrent social and behavioral adjustment and self-esteem in fourth and fifth graders. The first prediction is based on previous research (Bukowski et al. 1987; Hennessy Blum, 1991; Townsend et al., 1988; Vernberg, 1990), which found that dyadic friendship and peer group acceptance are associated with social and behavioral adjustment. Given that peer relations were related with adjustment in the second and third grade children (Hennessy Blum, 1991) and based on the risk literature (Parker & Asher, 1987), I predict that this trend will continue in fourth and fifth grade children.

Second, across the three types of peer relations, small group relations will be most associated with adjustment. In the second prediction, I predict that small group relations will show the strongest level of association of all three levels of peer relations with adjustment and self-perception. This prediction is based on the powerful influences of peer pressure. Brown (1989) reports that peer group pressure influences adolescents' attitudes and behavior in social activities and academic achievement (pp. 201-207). According

to Olmsted and Hare (1978), behavior in the small group reflects individuals' perceptions of the social environment (p. 61). In a study by Homans (1954), high interaction in a group of working girls was related to popularity and productivity (as cited in Bennis & Shepard, 1970, p. 122). The small group represents a microcosm of the society (Olmsted & Hare, 1978). Therefore, how children perform in a small group will represent how they perform in the world at large.

Hypothesis 2. The second hypothesis concerns the predictive association of early peer relations on later adjustment based on previous at-risk research findings (Kupersmidt et al., 1990; Parker & Asher, 1987). Low quality peer relationships in childhood are predictive of later adolescent and adult maladjustment (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Roff, Sells, & Golden, 1972). In most studies on peer relationships and adjustment, sociometric techniques are the exclusive means for assessing the quality of peer relations (Bukowski & Hoza, 1989; Cowen, Pederson, Babigian, Izzo, & Trost, 1973; French & Waas, 1985; Parker & Asher, 1987; Roff, Sells, & Golden, 1972). Researchers suggest that future research needs to examine the unique contributions of various levels of peer relations, such as friendship and sociometric status, on children's adjustment (Berndt & Ladd, 1989; Bukowski & Hoza, 1989; Furman & Robbins, 1985). Current research on the differential contributions of dyadic friendship and sociometric status (Hennessy Blum, 1991;

Townsend et al., 1988; Vernberg, 1990) indicates that both types of peer relations, friendship and peer group acceptance, are associated with adjustment. In the Hennessy Blum (1991) study, dyadic friendship and sociometric status are relatively independent types of peer relations yielding a small number of moderate associations. Therefore, friendship and group relations appear to make uniquely different contributions to children's social and behavioral competence. The second hypothesis extends research on the risk hypothesis by examining two distinct levels of peer relations in second and third graders, friendship and sociometric status, and comparing these two levels of peer relations with later adjustment in fourth and fifth graders.

Sample Subsets. The study consists of two subsets of subjects: a group of children tested at time 1 and time 2 previously in the Hennessy Blum (1991) study and a group of children tested only at time 2. The group tested at both time intervals provide a means to assess the predictive association of children's peer relationships on later adjustment. The group tested at only time 2 provides data to assess the concurrent associations between children's peer relationships and adjustment during the fourth and fifth grade years. The time 2 data includes assessments of friendship and sociometric status as well as the inclusion of a third level of peer relations, small group relations.

Implications. The implications of this study relate

directly to the role of children's peer relations in education, social and behavioral adjustment, and self perception. Because the effect of different levels of peer relations on children's adjustment are not well understood, this study provides critical information on the mechanisms of different levels of children's peer dynamics in the school setting and their associations with adjustment and self perception. Prior research on equal educational opportunities indicates that it is the characteristics of students and their relationships with each other, and not school resources, that account for differences in academic achievement (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966).

Therefore, this study may reveal specific applications in education and social intervention programs for peer modeling, peer tutoring, conflict resolution, and the differential needs of boys and girls in group and dyadic peer situations. Peer relations may be instrumental not only to academic success (Ladd, 1990) and interventions (Bierman, 1986) but also in children's overall social, behavioral, and self development. The role of sex differences, similarities, and the differential functions of various forms of peer relations in children's social, behavioral, and self adjustment are basic to our understanding of children.

Five questions will be addressed in the results and discussion sections of the dissertation regarding peer relations and adjustment. First, are dyadic friendship and

sociometric status at time 1 associated with social and behavioral adjustment at time 1? This first question refers back to the initial study by Hennessy Blum (1991). Second, are peer relations in the form of dyadic friendship, small group relations, and large group sociometric status at time 2 associated with social and behavioral adjustment and self-perception at time 2? Third, is the quality of both dyadic friendship and large group sociometric status at time 1 predictive of later social and behavioral adjustment at time 2 after controlling for adjustment at time 1? Fourth, are sex and socioeconomic differences apparent in the relationship between peer relations and adjustment? Fifth, are there reciprocal associations or influences with peer relations predicting adjustment and adjustment predicting peer relations? References to these five questions will appear in subheadings of the results and discussion sections.

II. Method

Subjects

The sample consisted of 179 fourth and fifth grade children and their parents. Subjects were recruited from the original time 1 sample of the Hennessy Blum (1991) study. Of the original 124 children and their parents participating in the original 1991 study, 81 children and parents participated in the follow-up study. Out of the remaining 43 children, approximately 20 families could not be located and 23 families either did not respond to invitations to be part of the follow-up or requested not to participate. In addition to the original time 1 subjects, 98 new children, who were classmates with the participating time 1 children, and their parents were recruited from two elementary schools located in Southern New Hampshire during the spring of the 1991 academic school year.

Therefore, there were three groups of subjects at time 2: (1) children from the participating schools at time 2, who had previously served as subjects at time 1 (N=44), (2) children from the non-participating schools at time 2, who had previously served as subjects at time 1 (N=37, these students were assessed in their homes; measures administered in the school, e.g., sociometric interview and group task, could not be assessed with this group), and (3) children from the participating schools, who were new subjects at time 2 (N=98). The three subsets existed in the follow-up study for two

reasons. First, two out of the four original schools from the Hennessy Blum (1991) study chose not to participate in the follow-up study. This may have been due to personnel changes in the two schools. Second, classroom composition changed for the children from year to year resulting in classrooms where some children had been in the time 1 study, while the remaining children were new to the study. Therefore, classroom assessments occurred in the two participating schools with children from the time 1 study and children new to the project. For children from the two non-participating schools, home visits were made.

From the two participating schools at time 2, there were eight classrooms. The individual classroom participation ranged from 68% to 100%. The average classroom participation was 78% involvement. The majority of the children in the current sample were white with two Asian American children, one Africa-American child, and two East Indian American children. Of the total 179 children, there were 97 girls and 82 boys. The children ranged in age from 9 to 12 years old. Socioeconomic status in the form of occupational prestige ranged from non-professional laborers to professional workers.

Measures

The study included six measures (see Table 1). Three of the measures were used in the Hennessy Blum (1991) study at time 1: (1) the Child Behavior Checklist for Ages 4-16 (CBC; Achenbach, 1988; Achenbach, 1978; Achenbach, & Edelbrock,

Table 1: Patterns of Peer Relations and Adjustment: A Longitudinal Follow-up Study.

Measure	Variable	Construct
Friendship Questionnaire. Completed by 2nd and 3rd graders; 4th and 5th graders. Adapted version from Furman (1989).	Friendship Factors: Warmth/Closeness; Conflict time 1 & time 2.	Quality of Dyadic Friendship
Behavioral Coding Scheme. Videotaped small groups of 4th and 5th graders. Adapted version from Furman et al. (1978).	Interaction Factor: Interact time 2.	Small Group Interaction
Sociometric Interview. Administered to 2nd and 3rd graders; 4th and 5th graders by trained research assistants. Coie, Dodge, & Coppotelli (1982).	Sociometric Score: Social Preference time 1 & time 2.	Quality of Peer Group Acceptance Classroom Group

Table 1 (continued)

Measure	Variable	Construct
Child Behavior Checklist. Completed by Parents in 1989 & 1991. Achenbach (1991).	Adjustment Scores: Total Social Competence, School Competence, and Behavior Problems time 1 & time 2.	Social & Behavioral Adjustment
Self-Perception Profile for Children. Completed by children in 1991. Harter (1985).	Self-Perception Scores: Social Acceptance, Behavioral Conduct, Scholastic Competence, Global Self-Worth time 2.	Self-Perception Adjustment
National Opinion Research Center Scale. Completed by parents in 1989 & 1991. NORC (1978).	Occupational Scores: Parents' Combined Socioeconomic Status time 1 and time 2.	Socioeconomic Status

1979; see Appendix A), (2) the Friendship Questionnaire (FRQ; Furman, 1989; see Appendix B), and (3) Sociometric Interview Protocol (SIP; Coie, Dodge, & Coppotelli, 1982; see Appendix C). The remaining three measures included: (4) Self-Perception Profile for Children (SPP; Harter, 1985; Harter, 1983; see Appendix D), (5) an Adapted Version of an Observational System for Coding Reinforcing, Neutral, and Punishing Interactions among Children (Furman, Masters, Rahe, and Binger, 1978; see Appendix E), and (6) The National Opinion Research Center Scale (NORC, 1978; see Appendix F).

The Child Behavior Checklist. The Child Behavior Checklist (CBC; Achenbach, 1991; Achenbach & Edelbrock, 1983; Achenbach, 1978; Achenbach & Edelbrock, 1979) provided an assessment of children's social and behavioral adjustment. There are two main sections on the Child Behavior Checklist: Social Competence and Behavior Problems. The Social Competence section consists of four parts: Total Social Competence, Activity Competence, Social Competence, and School Competence. A high score on the Social Competence Section indicates high levels of social competence. The Behavior Problems section consists of 12 parts: Total Behavior Problems, Internalizing, Externalizing, Depressed, Aggressive Behavior, Delinquent, Somatic Complaints, Social Withdrawal, Attention Problems, Thought Problems, Social Problems, and Sex Problems. High scores on Behavior Problems indicate high levels of behavior problems. The Child Behavior Checklist was

completed by parents and parent surrogates and is considered a well established measure. The median Pearson correlation on test-retest reliabilities for behavior problems and social competencies scores was .89 on the Child Behavior Checklist (Achenbach & Edelbrock, 1983, p. 49). The Cronbach alpha reliability in the Hennessy Blum (1991) study at time 1 was .94 for total behavior problems scores. An example of a sample item is "Doesn't get along with other children" (Achenbach, 1988, p. 3, see Appendix A).

The National Opinion Research Center Scale. In addition to assessing the social and behavioral competence of children, the Child Behavior Checklist has a section on parents' occupational status. Upon completion of the checklists, the occupational information was scored using the National Opinion Research Center Scale (NORC, 1978; see Appendix F). Three scores were derived (1) parents' combined occupational scores, (2) fathers' occupational scores, and (3) mothers' occupational scores. Using the NORC scale, socioeconomic status in the form of parents' occupational prestige scores is considered as potential predictor of adjustment. To calculate socioeconomic status, father's and mother's combined occupational prestige scores were averaged. If only one parent's occupation was listed, that parent's score was entered into analyses.

The Friendship Questionnaire. The Friendship Questionnaire (FRQ; Furman, 1989) measured the quality of

friendship, a self-report assessment completed by the children. The questionnaire shows concurrent validity with related friendship assessment questionnaires and research has been done to establish convergent validation (W. Furman, January 23, 24, 1989; April 18, 1991; October 15, 1993, personal communication). The Network of Relationships Inventory (NRI), a related questionnaire, assesses a wide range of children's social relationships (Furman & Buhrmester, 1985). The NRI contains a subset of questions for assessing the quality of best friend relationship that appear in the FRQ. According to Furman and Buhrmester (1985), the "psychometric analyses revealed that the internal consistencies of the scale scores were satisfactory, M Cronbach's Alpha = .80" for the NRI (p. 1018). The FRQ questionnaire consists of 50 items that comprise four friendship factor scores: warmth/closeness, relative status, conflict, and exclusivity. To limit the amount of material children were asked to complete, only FRQ items required to calculate the four friendship factors were included in the study (see p. 166 of Appendix B).

Research from the risk literature suggests that aggressive conflict and closeness in dyadic friendships are associated with concurrent and later adjustment (Hartup, 1993; Townsend et al., 1988; Vernberg, 1990). Therefore, based on conceptual grounds, warmth and conflict are used in the study to represent dyadic friendship in an effort to limit the

number of variables used in analyses. An example of a FRQ conflict item is "How much do you and your friend disagree and quarrel with each other" (p. 1 of questionnaire, see Appendix B).

The Sociometric Interview Protocol. The Sociometric Interview Protocol (SIP), originally defined by Gronlund (1959), consists of a technique for evaluating children's level of acceptance by peers in the classroom. Following an established protocol (see Appendix C) used by Coie, Dodge, and Coppotelli (1982), each of the children taking part in the classroom assessments phase of the study was asked to name, from a list of classroom students, three classmates he or she likes the most and three classmates he or she likes the least. A sorting system developed by Coie, Dodge, and Coppotelli (1982) classified children's social preference and social impact scores. The total number of liked-most nominations and liked-least nominations for each subject were standardized to correct for classroom size. A Social Preference score (SP) is derived from standardized likes most nominations minus likes least nominations per classroom, and a Social Impact score (SI) is derived from standardized likes most nominations plus likes least nominations per classroom. After SP and SI scores are calculated, children are classified into one of five sociometric groups. These groups include popular, average, rejected, neglected, and controversial as defined in the introduction. The sociometric interview technique has been

used in developmental research since the 1950s.

The Self-Perception Profile for Children. The Self-Perception Profile for Children (SPP; Harter, 1985; Harter, 1983; see Appendix D) is a self-report measure of children's self esteem or children's perceptions of themselves based on domain-specific judgements of their competence. The scale includes six subscales: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Behavioral Conduct, and Global Self-worth. The internal consistency of this scale as measured by the Cronbach's alpha ranged from .71 to .86 for each of the six subscales (Harter, 1985, p. 14). In order to limit the number of variables in data analyses, only the four subscales most related to the three CBC outcome variables are used: scholastic competence from the SPP corresponds to school competence from the CBC, social acceptance competence from the SPP corresponds to total social competence from the CBC, behavioral conduct competence from the SPP corresponds to total behavior problems, and global self-worth represents "the extent to which the child likes oneself as a person...a global judgement of one's worth as a person" (Harter, 1985, p. 6). An example of a sample item from social acceptance competence is "Some kids find it hard to make friends but other kids find it's pretty easy to make friends." (Harter, 1985, p. 1 of What I am Like Questionnaire).

The Observational Coding System. An adapted version of an Observational System for Coding Reinforcing, Neutral, and Punishing Interactions among Children (Furman, Masters, Rahe, and Binger, 1978; see Appendix E) was used to rate the quality of each children's small group interactions. This coding scheme was selected specifically to assess interpersonal peer group behaviors occurring during the videotaped small group activity period. Previous researchers, Masters and Furman (1981), show that the coding scheme has an "overall interrater agreement" ranging "from 95% to 99% (M=97%)" (p. 346). The kappa coefficients "ranged from .82 to .96 (M=.87)" (Masters & Furman, 1981, p. 346). The specific behaviors included positive or prosocial interactions, negative or antisocial interactions, and neutral non-interactions.

Procedures

Area superintendents from public school districts in Southern New Hampshire, who participated in the Hennessy Blum (1991) study, were contacted for an interview. At the interviews, information on the proposed project was presented with a request for districts' involvement and support (see Principal Consent Form, Appendix G) Pending school districts' approval, contact was then made with elementary principals and fourth and fifth grade teachers concerning involvement in the project. Two schools out of the original four schools in the Hennessy Blum (1991) study agreed to participate in the follow-up study.

Classroom Assessment Phase. A letter describing the follow-up study with an attached permission slip (see Appendix H) was sent to each fourth and fifth grade child's parent(s) from the two participating schools. After permission forms were returned, arrangements were made with each teacher for (1) group administration of the Friendship Relationship Questionnaire and the Self-Perception Profile for Children, (2) individual administration of the Sociometric Interview and (3) videotaping of small groups (3 to 5 children per group).

Friendship Relationship Questionnaire and Self-Perception Profile for Children. Children in groups of five were escorted to a private area in the school. Directions for completing the FRQ and SPP were explained to the children. Each child was asked to fill out the FRQ on someone from their classroom whom they considered to be a close friend. Children were asked to work independently on the questionnaires. Research assistants supported children in task and were present to monitor confidentiality and answer any questions the children might have in completing the forms. If any of the children had difficulty with reading or wanted the questions read to them or explained, the research assistants read or explained the questions.

Sociometric Interview Protocol. A total of 138 children were escorted individually by one of the three research assistants to a private area in the school. The SIP (Coie et al., 1982) was explained to each child. Children were

informed of the strict confidentiality of their responses. Children were asked to name, from the classroom roster placed in front of them, three classmates they liked the most and three classmates they liked the least. Children were asked to group together sets of children who "liked each other a lot and spent a lot of time together" (Freeman, Freeman, & Michaelson, 1988, p. 3). After the completion of the interview, each child was reminded of the confidentiality of the responses and asked not to discuss the interview with peers. Children were told that they were free to discuss any concerns with their parents. Teachers were asked to monitor confidentiality compliance. No problems were reported.

Small Group Interactions. After all the children in a given class completed the Sociometric Interview, children were either grouped into a naturally occurring clique (based on two or more nominations from children within the classroom who were not part of the clique) or assigned to a random small group. Because the number of cliques was less than 10 groups, most groups consisted of children chosen at random from the same classroom. The level of affiliation varied from group to group. The size of the groups ranged from three to five children. Each group was then escorted individually to a private area of the school and videotaped while playing the cooperation game called Broken Squares (Suessmuth, 1978; see Appendix I). Children who were in a clique completed a peer group questionnaire after participating in the cooperation

game. Due to the limited number of cliques, approximately six groups, the peer group questionnaires were not used in analyses. There were approximately 36 same sex groups, 19 girls groups and 17 boys groups.

Child Behavior Checklist. A second letter with instructions for completing the CBC was sent to each parent for completion. Home appointments and/or phone contacts were available to any parents with questions or requiring assistance in completing CBC. The checklists were scored using the T. M. Achenbach computer program, copyright 1991, University of Vermont, by trained research assistants.

Home Assessment Phase. For children previously in the Hennessy Blum (1991) study from the two schools not agreeing to participate in the study, a letter describing the follow-up study with an attached permission slip was sent to their parent(s). After permission slips returned, arrangements were made with the family for a home visit. Children in the home assessment phase of the study were given the Friendship Relationship Questionnaire and the Self-Perception Profile for Children. The Child Behavior Checklist was left with the parents to complete at their leisure and return in a stamped self-addressed envelope.

III. Results

The results section consists of five parts. The first part, the descriptive statistics of the measures, is a rather lengthy descriptive section. This part is an overview of each measure including sample sizes, means, standard deviations, ranges, distributions, correlations of subscales within and between measures, the small group interaction factor analysis, sex differences among the variables, and longitudinal sample differences.

The second part of the results section includes reanalyzed data from the Hennessy Blum (1991) study at time 1. Standard or simultaneous multiple regression analyses are summarized from the original 1989 time 1 data. Analyses include data on the entire time 1 sample, the longitudinal subset at time 1, and sex differences at time 1.

The third part reviews the concurrent associations found at time 2 in 1991. This third part contains the initial substantive findings of the dissertation. It concerns hypothesis 1, the associations, within time 2, between three levels of peer relations (dyadic friendship, small group interaction, and sociometric status) and two types of adjustment as rated by parents and children. Simultaneous multiple regression analyses are summarized for the follow-up study at time 2, controlling for the effects of sex and socioeconomic status.

The fourth part is the longitudinal follow-up study. This fourth part contains the most important findings of the dissertation. It concerns hypothesis 2, the longitudinal associations for predicting later adjustment from earlier dyadic friendship and peer group acceptance. Partial analysis of variance using hierarchical multiple regression analyses are summarized controlling for sex and socioeconomic status.

The fifth and final part is an examination of the reciprocal associations of the relationship between adjustment and peer relations. It considers a reversal in the direction of effects with adjustment at time 1 predicting peer relations time 2. Standard multiple regression and partial analysis of variance using hierarchical multiple regression analyses are summarized with exploratory analyses of sex differences.

Part 1: Descriptive Statistics of the Measures

Displayed on Table 2 through Table 18 are the descriptive statistics for the six measures. The measures include the Friendship Questionnaire (FRQ) at time 1 and time 2, Small Group (SGI) Interactions at time 2, Sociometric Status (SP) at time 1 and time 2, the Child Behavior Checklist (CBC) at time 1 and time 2, the Self-Perception Profile (SPP) at time 2, and the National Opinion Research Center (NORC) Scale at time 1 and time 2. The FRQ, SGI, and SP represent the three levels of peer relations. The CBC and the SPP represent two aspects of adjustment as assessed by parents and children. The NORC Scale assessed the occupational prestige or socioeconomic

status of parents. Measurement of each study variable occurred at time 1 (1989) and/or time 2 (1992). A number 1 or number 2 appears after each variable to represent the time period of specific variables. For example, the following are peer relations predictor variables from the dyadic Friendship Relationship Questionnaire (FRQ): warmth 1, warmth 2, conflict 1, and conflict 2. Interact 2 represents the peer relation variable from observational coding of the small group interactions, while social preference 1 and social preference 2 are the variables representing sociometric status or peer group acceptance and rejection.

Sample Differences in Subject Attrition. There are two sample subsets during each of the time 1 and time 2 assessment periods. These sample subsets included: (1) children from the original time 1 study who participated in time 2 follow-up study versus children from the time 1 study who did not participate in the time 2 follow-up study (time 1 vs. time 1 & 2) and (2) children who participated in both time 1 and time 2 studies versus children who participated only the time 2 study (time 2 vs. time 1 & 2). Do children who continued in the follow-up study differ from children who dropped out? Do children who are new to the follow-up study differ from children who participated in the past study? A series of analyses were completed to assess whether attrition was random and whether groups were equivalent across study variables.

Time 1 Versus Time 1 & 2 Subset Sample Differences. Approximately 65% of the original 1989 sample at time 1 from the Hennessy Blum (1991) study participated in the follow-up study at time 2. In order to test for differences in families who participated (group 1) versus families who did not participate (group 2) in the follow-up study at time 2, t-test analyses compared the two groups for mean differences across study variables including three adjustment scores from the Child Behavior Checklist, friendship scores for warmth and conflict, sociometric scores for social preference, and parents' socioeconomic status. Table 2 indicates that for all time 1 variables there were no mean differences between the two groups.

Time 2 Versus Time 1 & 2 Subset Sample Differences. Further t-test analyses were completed to test for sample differences at time 2 between children participating in both time 1 and time 2 assessments and children participating only in time 2 assessments. Table 3 indicates that there were no mean differences between the two samples across study variables, except for conflict 2. Crosstab analyses of the two samples suggested that there were sex differences in conflict 2. A t-test confirmed that there were mean differences between the sexes in the two samples, t (175) = 4.26, $p < .0001$. Overall, girls tended to have low conflict scores (M =15.05), while boys tended to have high conflict scores (M = 19.08).

Table 2: Time 1 Sample Differences.

Variables	Group 1 1992 Participants N	M	SD	Group 2 1992 Non-Participants N	M	SD	t
Total Social Competence 1	81	20.27	3.21	37	19.44	3.00	1.35
Total Behavior Problems 1	80	26.34	16.70	40	26.48	22.00	-.04
School Competence 1	81	4.68	1.22	39	4.52	1.24	.67
Warmth 1	82	85.30	14.76	39	84.46	18.77	.27
Conflict 1	82	17.14	5.43	40	17.78	6.51	-.57
Social Preference 1	82	.11	1.74	40	-.00	1.57	.34
Parents' Socioeconomic Status 1	80	44.97	10.82	39	41.87	12.94	1.37

a$p < .10$ $*p < .05$ $**p < .01$ $***p < .001$

Table 3: Time 2 Sample Differences.

	Longitudinal Subjects			New Time 2 Subjects			
Variables	N	M	SD	N	M	SD	t
Total Social Competence 2	68	18.77	2.76	76	18.76	3.45	.03
Total Behavior Problems 2	70	21.57	15.71	78	24.78	20.92	-1.05
School Competence 2	68	4.79	1.20	76	4.77	1.13	.09
Social Acceptance Competence 2	65	17.85	3.97	77	18.14	4.33	-.42
Behavioral Conduct Competence 2	65	18.29	3.66	76	18.90	4.38	-.88
Scholastic Competence 2	65	17.60	3.78	77	17.89	4.26	-.42
Global Self-worth 2	65	19.35	3.33	77	19.62	3.67	-.45
Parents' Status 2	69	44.32	11.76	75	47.07	13.12	-1.32
Warmth 2	66	77.79	14.71	73	78.68	14.48	-.36
Conflict 2	66	17.92	6.75	75	15.49	5.85	2.29*
Interact 2	25	.37	.38	75	.39	.47	-.26
Social Preference 2	28	.11	1.79	77	-.12	1.53	.65

ap = .089 *p < .05 **p < .01 ***p < .001

Friendship Questionnaire. The questionnaire data for the FRQ included two factor scores, warmth/closeness and conflict, from data collected at time 1 and time 2. As shown on Table 4, a total of 179 children completed the FRQ at time 2, while 138 children completed the FRQ at time 1. At time 1, the frequency histograms showed conflict 1 to have a slightly positive skewness, while warmth 1 had a slightly negative skewed distribution. At time 2, the frequency histograms showed conflict 2 to have a slightly positive skewness, while warmth 2 had a slightly negative skewed distribution. These distributions may reflect children's biases towards reporting socially desirable scores. High warmth and low conflict may be the preferred or ideal levels in friendships. The reliability coefficients for warmth and conflict at time 1 were .93 and .73 respectively; and at time 2 were .94 and .86, respectively (see Table 4). Table 5 shows that at time 2 warmth and conflict had a moderate negative correlation. In the longitudinal study, warmth at time 1 and time 2 had a moderate positive correlation, warmth 2 and conflict 2 had a small negative correlation, and warmth 1 and conflict 1 had a small negative correlation as well.

Small Group Interactions. Two trained research assistants coded the individual children's interactions in the small group activity using an adapted observational system from Furman and Masters (1978). The observational system for small group interactions resulted in two scores, positive

Table 4: Descriptive Statistic the Friendship Questionnaire, Small Group Interaction, Sociometric Status, Child Behavior Checklist, Self Perception Profile, and the National Opinion Research Center Scale.

Friendship Questionnaire	N	Mean	SD	Range
Warmth 2 Factor 1992	175	78.44	14.25	26 to 112
Conflict 2 Factor 1992	177	16.82	6.55	9 to 45
Warmth 1 Factor 1989	138	84.98	15.89	39 to 110
Conflict 1 Factor 1989	139	17.37	6.55	9 to 44
Small Group Interaction 1992	**N**	**Mean**	**SD**	**Range**
Positive Prosocial Interactions	128	.65	.30	.11 to 1.60
Neutral Non-Interactions	128	.29	.19	.00 to .86
Interact Factor 2	128	.36	.44	-.72 to 1.60
Sociometric Status	**N**	**Mean**	**SD**	**Range**
Social Preference 2 1992	137	.00	1.62	-4.47 to 3.56
Social Preference 1 1989	139	.00	1.70	-4.04 to 3.82

Table 4 (continued)

Self Perception Profile 1992	N	Mean	SD	Range
Social Acceptance 2	176	18.31	4.19	6 to 24
Behavioral Conduct 2	175	18.48	4.08	6 to 24
Scholastic Competence 2	176	17.96	4.00	7 to 24
Global Competence 2	176	19.66	3.50	7 to 24

National Opinion Research Council Scale	N	Mean	SD	Range
Parents' Socioeconomic Status 2 1992	144	45.75	12.52	17 to 78
Fathers' Socioeconomic Status 2 1992	144	51.15	19.69	17 to 82
Mothers' Socioeconomic Status 2 1992	144	43.86	17.09	12 to 82
Parents' Socioeconomic Status 1 1989	12-	44.09	11.60	17 to 75
Fathers' Socioeconomic Status 1 1989	12-	54.40	21.74	17 to 82
Mothers' Socioeconomic Status 1 1989	1?-	42.78	18.57	15 to 78

Table 4 (continued)

Child Behavior Checklist Time 2 Sample	N	Mean	SD	Range
Total Social Compliance 2	144	18.76	3.13	11.5 to 26.0
Total Behavior Problems 2	148	23.26	18.64	0.0 to 88.0
School Competence 2	144	4.78	1.16	1.5 to 6.0
Child Behavior Checklist Longitudinal Sample 1992	**N**	**Mean**	**SD**	**Range**
Total Social Competence 2	68	18.77	2.76	13.5 to 23.5
Total Behavior Problems 2	70	21.57	15.71	0.0 to 72.0
School Competence 2	68	4.79	1.19	1.5 to 6.0
Longitudinal Sample 1989				
Total Social Competence 1	81	20.01	3.14	13.2 to 27.2
Total Behavior Problems 1	80	26.38	18.54	2.0 to 81.0
School Competence 1	81	4.63	1.22	1.5 to 6.0

Table 4 (continued)

Friendship Questionnaire Reliability Coeffecients:

1989	1992
alpha = .93 for Warmth 1	alpha = .94 for Warmth 2
alpha = .73 for Conflict 1	alpha = .86 for Conflict 2

Small Group Interrater Reliability Coefficients: 1992

pearson correlation = .74, .74 for Positive-Prosocial Interactions

pearson correlation = .74, .72 for Neutral Non-Interactions

Self Perception Profile Reliabilities Coefficients: 1992

alpha = .81 for Social Acceptance Self Competence 2

alpha = .85 for Behavioral Conduct Self Competence 2

alpha = .81 for Scholastic Self Competence 2

alpha = .78 for Global Competence 2

Child Behavior Checklist Reliabilities Coefficients: 1989

Total Behavior Problems 1 = .94 alpha for entire sample

Table 5: Correlations Among the Factors of the Friendship Questionnaire for Girls and Boys in 1992 Correlational Sample and in 1989/1992 Longitudinal Study.

Factors 1992	1.			2.
1. Warmth 2	--			
2. Conflict 2	-.36**			--
Factors 1989/1992	**1.**	**2.**	**3.**	**4.**
1. Warmth 1	--			
2. Warmth 2	.31**	--		
3. Conflict 1	-.20*	.06	--	
4. Conflict 2	-.15	-.29**	.12	--

*p < .05 **p < .01

prosocial interactions and neutral non-interactions. As shown on Table 4, a total of 128 children received scores for small group interactions, 70 girls and 58 boys. It is important to note that because children's interactions are coded while in a group setting, the small group interaction scores are not independent measures for children in the same group. The frequency histograms showed a slightly positive skewed distribution for positive interactions and neutral non-interactions. The frequency distribution patterns remained the same when analyses were done separately for boys and girls. The interrater reliabilities for positive interactions and neutral non-interactions using Pearson product moment correlation coefficient were .74 and .74, respectively, for the initial reliability, and .74 and .72, respectively, for the final reliability.

Negative group interactions were deleted from calculations and data analyses for two reasons. First, the rate of actual occurrences was very low. Sixty-two (40 girls and 22 boys) out of 128 subjects (approximately 49%) did not display any negative group interactions. Other researchers have noted that negative behaviors, like aggression, are low-frequency behaviors and make valid data analyses difficult (Schwartz, Dodge, & Coie, 1993, p. 1757). Second, the frequency distribution for negative interactions had an extremely positive skewness. Therefore, low-frequency behaviors and a highly skewed distribution made analyses of

negative small group behaviors invalid.

A factor analysis was conducted to confirm inclusion of peer relations variables in study analyses. The results of a varimax rotation based on a three factor criteria using Principal Axis Factoring are shown on Table 6. The determinant of the correlation matrix and factorability were acceptable for this analysis. In the first factor, labeled as Interaction Factor, positive and neutral interactions had loadings with opposite signs. To reduce the number of predictor variables without losing the contributions of positive and neutral interactions, the two interaction variables were merged by computing a difference score between positive and neutral interactions. The resulting variable, interact 2, has a normal distribution with the mean, standard deviation, and range shown on Table 4.

Significant correlations between the three interaction scores are shown on Table 7. Positive and neutral interactions are negatively correlated. Positive interactions and interact are highly positively correlated, while neutral interactions and interact are highly negatively correlated.

Sociometric Status. Social Preference is the single variable representing sociometric status in the study. A total of 234 sociometric interviews were completed during time 1 and time 2 data collection intervals. Because two out of the four initial participating schools chose not to participate at time 2, only 42 children (21 girls and 21 boys)

Table 6: Factor Loadings of the Three Types of Peer Relations 1992 Dimensions on Three Rotated Factors (N=122).

	Interaction Factor	Conflict Warmth Factor	Social Preference Factor
	1	2	3
Warmth 2	.03	-.67	.46
Conflict 2	-.03	.92	.00
Positive Interaction 2	.92	-.07	-.04
Neutral Non-Interaction 2	-.92	-.08	.00
Social Preference 2	-.04	-.12	.95
% of variance accounted for	34.4	31.9	15.8
Total % variance = 82.1			

Determinant of Correlation Matrix = .3937827
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .52609
Bartlett Test of Sphericity = 110.43679, Significance < .0001

Table 7: Correlations Among the Interaction Scores of the Small Group Interactions for Girls and Boys in 1992 Correlational Sample.

Scores	1.	2.	3.
1. Positive Prosocial Interactions	--		
2. Neutral Non-Interactions	-.67**	--	
3. Interact 2	.95**	-.87**	--

*p < .05 **p < .01

participated in both time 1 and time 2 assessments of social preference. Such a small sample prevented the use of time 2 sociometric data in longitudinal analyses. Therefore, longitudinal analyses used social preference scores from time 1 only. This involved approximately 70 children (36 girls and 34 boys) from time 1. Of the 70 original children, 42 children were assessed at school and 28 were assessed at home at time 2. Although these 70 children did not all have sociometric scores from time 2, they all had the remaining peer relations and adjustment scores from time 2 making it possible to perform longitudinal analyses on selected variables. Time 2 sociometric data were used in time 2 correlational analyses and factor analysis. In Table 4, the sociometric data at each time interval consisted of 139 children (67 girls and 72 boys) at time 1 and 137 children (76 girls and 61 boys) at time 2. At time 1, the five sociometric groups included 38 popular children, 28 average children, 27 rejected children, 5 neglected children, and 5 controversial children. At time 2, the five sociometric groups included 35 popular children, 32 average children, 31 rejected children, 4 neglected children, and 13 controversial children.

The frequency distribution for social preference 1 was approximately normal. Social preference 2 had a slight negative distribution. Similar distribution patterns appeared when samples were split by sex with an approximately normal skewed distribution for girls and boys at time 1 and a

slightly negative skewed distribution for girls and boys at time 2.

Peer Relations. As mentioned above, a factor analysis with varimax rotation using Principal Axis Factoring was conducted on the three levels of peer relations including warmth 2, conflict 2, positive interactions, neutral non-interactions, and social preference 2 (see Table 6). A three factor solution was most interpretable. The factors are labeled (1) Interaction Factor, (2) Warmth and Conflict Factor, (3) Social Preference Factor, accounting for 34.4, 31.9, and 15.8 percent of the variance, respectively. The interaction factor had a positive loading for positive interactions and a negative loading for neutral interactions. The warmth and conflict factor had a positive loading for warmth and a negative loading for conflict. The social preference factor had a positive loading on two variables, warmth in dyadic friendship and social preference in the peer group.

The inter-correlations of the three levels of peer relations showed that warmth is positively correlated with social preference and negatively correlated with conflict at time 2, while social preference and conflict are negatively correlated (see Table 8). In the longitudinal sample on Table 9, warmth 1 is positively correlated with warmth 2 and negatively correlated with conflict 1, while warmth 2 is negatively correlated with conflict 2. No other correlations

Table 8: Correlations Between Measures of the Friendship Questionnaire, Small Group Interactions, and Sociometric Status in 1992 Correlational Sample.

Measures	1.	2.	3.	4.
1. Warmth 2	--			
2. Conflict 2	-.36**	--		
3. Interact 2	.00	.02	--	
4. Social Preference 2	.33**	-.19*	-.05	--

*p <.05 **p < .01

Table 9: Correlations Between Measures of the Friendship Questionnaire and Sociometric Status in 1989 and 1992 Longitudinal Sample.

Measures	1.	2.	3.	4.	5.
1. Warmth 1	--				
2. Warmth 2	.31**	--			
3. Conflict 1	-.20*	-.06	--		
4. Conflict 2	-.15	-.29**	.12	--	
5. Social Preference 1	.03	.14	-.11	-.03	--

*p < .05 **p < .01

existed between dyadic friendship and group assessments of social preference 1. Although dyadic friendship, small group relations, and sociometric status were all measures of peer relations, they did not emerge as one common factor of peer relations.

Child Behavior Checklist. Data analyses used two primary Child Behavior Checklist variables, Total Behavior Problems and Total Social Competence. These two variables represent overall behavioral and social adjustment for boys and girls combined scores. School Competence, a subscale of Total Social Competence is an additional CBC variable used in analyses. Displayed in Table 4 are the descriptive statistics for three combinations of Child Behavior Checklist data, the entire time 2 sample, the longitudinal sample at time 1, and the longitudinal sample at time 2. A total of 148 parents returned the CBC at time 2. Out of time 2 sample, 70 parents returned the CBC from the original sample at time 1. The frequency histograms for the entire CBC time 2 sample showed that total social competence had a normal distribution, school competence had an approximately normal distribution, while total behavior problems had a slightly positive skewed distribution. For the longitudinal subsample at time 2, total social competence had an approximately normal distribution, school competence had a negatively skewed distribution, and total behavior problems had a positively skewed distribution. The longitudinal subsample at time 1 showed a similar pattern

with total social competence having a relatively normal distribution, school competence having a negatively skewed distribution, and total behavior problems having a positively skewed distribution. Common distribution patterns between the two sample subsets for the three CBC variables may be due to social desirability in subjects' responses. Parents may be biased towards reporting scores high in school competence and low in behavior problems. Additionally, most children in the public schools tend to be well adjusted.

Shown in Table 10 through Table 13 are the correlations among the three CBC variables and between the three types of peer relations variables. As indicated on Table 10, all three CBC variables are significantly correlated at time 2. Note that school competence is a subscale of total social competence. Therefore, relatively high correlations are expected between these two variables. In the longitudinal samples, the high number of correlations continued except for relationships between school competence 1 with total behavior problems 2, school competence 2 with total behavior problems 1, and school competence 2 with total behavior problems 2.

A limited number of significant small correlations existed between peer relations and adjustment (see Table 11). Four correlations between the dyadic friendship and CBC variables included: conflict 2 and school competence 2, conflict 2 and total social competence 1, conflict 1 and total social competence 2, conflict 2 and school competence 1. In

Table 10: Correlations Among the Child Behavior Checklist for Girls and Boys in 1992 Correlational Sample and 1989/1992 Longitudinal Sample.

Subscales 5	1992	1.	2.	3.
1. Total Social Competence 2		--		
2. Total Behavior Problems 2		-.40**	--	
3. School Competence 2		.61**	-.34**	

Subscales 1989/1992	1.	2.	3.	4.	5.	6.
1. Total Social Competence 1	--					
2. Total Social Competence 2	.55**	--				
3. Total Behavior Problems 1	-.46**	-.31*	--			
4. Total Behavior Problems 2	-.29*	-.35**	.62**	--		
5. School Competence 1	.50**	.41**	-.28*	-.22	--	
6. School Competence 2	.34**	.56**	-.22	-.19	.76**	--

*p < .05 **p < .01

Table 11: Correlations Among the Friendship Questionnaire and Child Behavior Checklist in 1992 Correlational Sample and 1989/1992 Longitudinal Sample.

Subscales 1992	Warmth 2	Conflict 2
Total Social Competence 1	.08	-.07
Total Behavior Problems 2	-.12	.112
School Competence 2	.14	-.22**

Subscales 1989/1992	Warmth 1	Warmth 2	Conflict 1	Conflict 2
Total Social Competence 1	-.02	-.11	-.11	-.24*
Total Social Competence 2	.18	.07	-.27*	-.11
Total Behavior Problems 1	-.06	.00	.14	.17
Total Behavior Problems 2	-.09	-.23	-.13	.14
School Competence 1	-.01	.08	-.19	-.35**
School Competence 2	.08	.03	-.20	-.27*

*$p < .05$ **$p < .01$

Table 12, a significant single small correlation existed between small group relations and CBC variables: interact 2 and total behavior problems 2. Five significant small to moderate correlations between sociometric status and CBC variables included: social preference 2 and total social competence 2, social preference 2 and total behavior problems, social preference 1 and total social competence 1, social preference 1 and total behavior problems 1, and social preference 1 and total behavior problems 2 (see Table 13). In summary, moderate to high significant correlations existed among the three CBC variables. The higher correlations among the CBC variables occurred with the same variable between time 1 and time 2. Conflict in dyadic friendship and social preference in the peer group correlated most with CBC adjustment scores.

Self-Perception Profile. A total of 176 fourth and fifth graders completed the Self-Perception Profile. Analyses were performed on data from four subscales: Social Acceptance Competence, Behavioral Conduct Competence, Scholastic Competence, and Global Self-worth Competence. The descriptive statistics are shown in Table 4. The reliability coefficients for social acceptance competence, behavioral conduct competence, scholastic competence, and global self-worth were .81, .85, .81, and .78, respectively. The frequency histograms for all four subscales showed negatively skewed distributions. The shape of the distributions in children's

Table 12: Correlations Between Small Group Interaction with Child Behavior Checklist and Self-Perception Profile in 1992 Correlational Sample.

Subscales 1992	Interact 2
Total Social Competence 2	.20
Total Behavior Problems 2	-.24*
School Competence 2	.02

Subscales 1992	Interact 2
Social Acceptance Competence 2	-.02
Behavior Conduct Competence 2	.06
Scholastic Competence 2	.03
Global Competence 2	.06

*$p < .05$ **$p < .01$

Table 13: Correlations Between Sociometric Status and Child Behavior Checklist 1992 Correlational and 1989/1992 Longitudinal Study.

Subscales 1992	Social Preference 2
Total Social Competence 2	.21*
Total Behavior Problems 2	-.35**
School Competence 2	.14

Subscales 1989/1992	Social Preference 1
Total Social Competence 1	-.26*
Total Social Competence 2	.21
Total Behavior Problems 1	-.37**
Total Behavior Problems 2	-.28*
School Competence 1	.17
School Competence 2	.11

*$p < .05$ **$p < .01$

self-perception variables may be due to the role of desirability in subjects' responses. Children may have a bias towards high self-perception scores.

Shown in Table 12 through Table 17 are the correlations among the four SPP adjustment variables and the correlations between the SPP variables, CBC variables, and the three types of peer relations variables. The SPP subscale variables showed moderate significant correlations with each other (see Table 14). Out of a possible 24 correlations on Table 15, there were 11 significant small to moderate correlations between dyadic friendship and self-perception. The highest number of significant correlations, five out of six correlations, occurred with social acceptance competence. Global competence and behavior conduct competence had two out of six significant correlations, while scholastic competence had only one. For peer group social preference at time 1 and time 2, social acceptance competence correlated the most, followed by global competence and behavioral conduct competence (see Table 16). There were no significant correlations between group acceptance and scholastic competence. Additionally, the small group variable, interact, showed no significant correlations with any of the self-perception variables (see Table 12). In Table 17 for correlations between CBC adjustment and SPP adjustment, there were 8 out of 12, small to moderate, significant correlations. The correlations occurred equally among the SPP and the CBC

Table 14: Correlations Among Subscales of the Self-Perception Profile for Girls and Boys in the 1992 Correlational Sample.

Subscales 1992	1.	2.	3.	4.
1. Social Acceptance Competence 2	--			
2. Behavioral Conduct Competence 2	.25**	--		
3. Scholastic Competence 2	.20**	.39**	--	
4. Global Competence 2	.32**	.41**	.46**	--

*p < .05 **p < .01 ***p < .001

Table 15: Correlations Between the Friendship Questionnaire and Self-Perception Profile in 1992 Correlational Sample and 1989/1992 Longitudinal Sample.

Subscales 1992	Warmth 2	Conflict 2
Social Acceptance Competence 2	.39**	-.20**
Behavior Conduct Competence 2	-.15	-.38**
Scholastic Competence 2	.17*	-.06
Global Competence 2	.14	-.22**

Subscales 1989/1992	Warmth 1	Warmth 2	Conflict 1	Conflict 2
Social Acceptance Competence 2	.26*	.26*	-.01	-.25*
Behavior Conduct Competence 2	.11	.20	-.00	-.49**
Scholastic Competence 2	.18	.16	-.15	-.12
Global Competence 2	.30**	-.08	-.01	-.21

*$p < .05$ **$p < .01$

Table 16: Correlations Between the Sociometric Status and Self-Perception Profile in 1992 Correlational Sample and 1989/1992 Longitudinal Sample.

Subscales 1992	Social Preference 2
Social Acceptance Competence 2	.40**
Behavior Conduct Competence 2	.18*
Scholastic Competence 2	.13
Global Competence 2	.21*
Subscales 1989/1992	**Social Preference 1**
Social Acceptance Competence 2	.43**
Behavior Conduct Competence 2	.04
Scholastic Competence 2	.14
Global Competence 2	.13

*$p < .05$ **$p < .01$

Table 17: Correlations Between the Child Behavior Checklist and the Self-Perception Profile for Girls and Boys in 1992 Correlational Sample.

Subscales 1992	Total Social Competence 2	Total Behavior Problems 2	School Competence 2
Social Acceptance Competence 2	.25**	-.27**	.14
Behavior Conduct Competence 2	.14	-.21**	.21*
Scholastic Competence 2	.31**	-.15	.47**
Global Competence 2	.22*	-.15	.23**

*$p < .05$ **$p < .01$

variables. In summary, the SPP adjustment variables correlated, moderately, with each other and with most of the CBC adjustment variables. Social acceptance competence correlated the most with the peer relations variables except interact 2.

National Opinion Research Center. The descriptive statistics for the National Opinion Research Center, a measure of socioeconomic status in the form of occupational prestige, are shown in Table 4. Listed are three occupational scores: parents' socioeconomic status (mother's and father's combined occupational prestige score), fathers' socioeconomic status (father's occupational prestige score), and mothers' socioeconomic status (mother's occupational prestige score). The frequency histograms showed that parents' socioeconomic status at time 1 and time 2 had a normal distribution, while fathers' status and mothers' status had slightly positive skewed distributions. Parents' combined occupational prestige score represented socioeconomic status in data analyses.

The inter-correlation matrix of parents' socioeconomic status at time 1 and all other study variables showed that out of 19 possible correlations, there were four statistically significant small to moderate correlations: parents' status at time 1 significantly correlated with total social competence 1, r =.31, $p < .01$, social preference 1, r = .24, $p < .01$, warmth 2, r = .31, $p < .01$, and parents' status 2 as listed above. The inter-correlation matrix of parents' socioeconomic

status at time 2 and all other study variables showed that out of 19 possible correlations, there were six statistically significant small to moderate correlations: parents' status at time 2 significantly correlated with total social competence 1, r =.26, p < .01, school competence 1, r = .25, p < .05, total social competence 2, r = .34, p < .01, school competence 2, r = .18, p < .05, scholastic competence 2, r = .26, p < .01, and parents' status 1, r = .55, p < .01. Overall, parents' socioeconomic status at time 1 and 2 showed relatively few correlations with other study variables.

Sex Differences Across Study Variables. Hennessy Blum (1991) found differences in the patterns of associations for boys and girls between peer relations and adjustment at time 1. In multiple regression analyses, dyadic friendship and sociometric status were related to overall social competence and school competence for boys but not for girls. Although sociometric status was related to overall behavioral adjustment for both boys and girls, effect sizes were moderate for boys and small for girls. Dyadic friendship was not related to behavioral adjustment for either boys or girls. In order to identify potential sex differences for main effects in the current study, t-test analyses compared the mean differences between boys and girls for all study variables.

Presented on Table 18 are the 18 variables used in the study. Six variables showed sex differences: warmth 2, conflict 2, total behavior problems 2, school competence 1,

Table 18: Sex Differences for All Variables Using T-Test Analyses.

Variable	Girls (N)	M	SD	Boys (N)	M	SD	t
Warmth 1	65	87.14	14.32	73	83.05	17.05	-1.51
Warmth 2	97	81.57	14.24	78	74.54	13.36	-3.34***
Conflict 1	66	16.83	4.95	73	17.86	6.43	1.04
Conflict 2	99	15.05	4.96	78	19.08	7.58	4.26***
Social Preference 1	67	-.05	1.80	72	.05	1.61	.35
Social Preference 2	76	.08	1.52	61	-0.10	1.75	-.63
Interact 2	70	.42	.48	57	.29	.39	-1.63
Total Social Competence 1	54	20.27	3.19	64	19.79	3.10	-.82
Total Social Competence 2	80	18.98	3.15	64	18.49	3.11	-.93
Total Behavior Problems 1	56	24.86	18.36	64	27.72	18.73	.84
Total Behavior Problems 2	82	20.07	16.83	66	27.23	20.10	2.36*
School Competence 1	54	4.97	.97	66	4.35	1.34	-2.84**
School Competence 2	80	5.00	1.04	64	4.50	1.24	-2.63**
Social Acceptance Competence 2	98	18.22	4.46	78	18.41	3.84	.29
Behavior Conduct 2	98	19.75	3.58	77	16.85	4.13	-4.98***
Scholastic Competence 2	98	18.09	3.66	78	17.78	4.41	-.51
Global Competence 2	98	19.84	3.36	78	19.43	3.68	-.78
Parents' Socioeconomic Status 2	81	44.88	12.18	63	46.87	12.94	.95

*$p < .05$ **$p < .01$ ***$p < .001$

school competence 2, and behavior conduct competence 2. Although 6 out of 18 variables showed sex differences, the majority of the study variables appeared not to differ between boys and girls. Whenever sex is used as a study variable in analyses, boys were coded as "1" and girls were coded as "2".

Part 2: Are Dyadic Friendship and Peer Group Acceptance Associated With Adjustment As Rated By Parents At Time 1?

Statistical analyses from the Hennessy Blum (1991) study for time 1 data indicated that the sociometric variable, social preference 1, was a significant predictor of adjustment for boys and girls. In addition, Hennessy Blum (1991) study at time 1 data found differences in the patterns of association for boys and girls between peer relations and adjustment. Originally, Hennessy Blum (1991) ran separate analyses for boys and girls due to scoring differences in sex specific outcome variables. For example, the subscale sex problems applied only to girls, while the subscale uncommunicative applied only to boys. Other subscales, like aggression, applied to both girls and boys but were scored using different test items. Three subscales, total social competence, total behavior problems, and school competence, were scored in the same manner for girls and boys. The follow-up study CBC outcome variables (total social competence 1, total behavior competence 1, and school competence 1) allowed for boys' and girls' data to be combined into the same analyses.

The Findings From The Time 1 Sample Revisited. Reanalyzed data from time 1 for second and third graders are shown on Table 19. In these multiple regression analyses, warmth 1, conflict 1, and social preference 1 are entered simultaneously into the regression equation as predictor variables with and without sex controlled for. Overall, peer relation variables in combination are highly related to total social competence 1, school competence 1, and total behavior problems 1 with social preference 1 being the significant predictor of all three types of adjustment. When sex is entered in as a predictor, sex differences appeared with only school competence such that girls had higher school competence scores than boys.

Further analyses tested for sex interactions with the peer relations predictors for social and behavioral adjustment. For total behavior problems 1, two out of three sex interactions were significant: social preference by sex, $B = .61$, $p < .05$, and conflict by sex, $B = .96$, $p < .01$. These significant interactions accounted for a change in the R-square for total behavior problems 1 of .07. There were no significant sex interactions for total social competence 1. Overall at time 1, analyses showed that there are (1) sex differences in school competence and (2) sex interactions with social preference and friendship conflict in the associations between peer relations and behavioral adjustment.

Analyses by Sex at Time 1. Separate analyses by sex (see

Table 19: Standard Multiple Regression for 1989 Correlational Sample of Children's Social and Behavioral Adjustment on Two Types of Peer Relations With and Without Sex Controlled For.

	Predictor Variable Standardized Regression Coefficients							
Outcome Variable	Sex	Warmth 1	Conflict 1	Social Preference 1	F	R	R^2	R^2_{ADJ}
Total Social Competence 1 (N=114)		.09	-.11	.32***	6.77***	.39	.15	.13
	.04	.08	-.11	.32***	5.08***	.40	.16	.13
School Competence 1 (N=114)		.04	-.16a	.23*	4.47**	.33	.11	.08
	.23**	.01	-.13	.25**	5.23***	.40	.16	.13
Total Behavior Problems 1 (N=115)		-.05	.01	-.43***	9.05***	.44	.20	.17
	-.05	-.04	.00	-.43***	6.85***	.44	.20	.17

ap < .10 *p < .05 **p < .01 ***p < .001

Table 20) showed differences in the patterns of associations between peer relations and adjustment for boys and girls. All three associations between peer relations and adjustment were significant for boys with small to large effect size estimates for social preference, while only one associations, peer relations and behavior adjustment, was significant for girls with a small effect size estimate for social preference.

Time 1 Longitudinal Subjects. A second reanalysis of the time 1 data for the longitudinal subset is shown on Table 21. The associations between peer relations and adjustment are weaker than in the first set of analyses with smaller effect size estimates. The peer relation variables in combination are related significantly to total behavior competence 1 with social preference 1 being the significant predictor for adjustment. Sex differences appeared in the relationship between peer relations and school competence 1 with a small effect size. Sex differences did not appear in the relationships between peer relations with total behavior problems 1 and total social competence 1.

The reanalyzed time 1 data showed social preference to be a significant predictor of adjustment. The effects of social preference on adjustment were stronger with the original sample than for the longitudinal subset. This may be due, in part, to smaller sample size (115 vs. 79).

Table 20: Standard Multiple Regression for 1989 Correlational Sample of Girls' and Boys' Adjustment on Peer Relations.

	Predictor Variables Standardized Regression Coefficients						
Girls: Outcome Variables	Warmth 1	Conflict 1	Social Preference 1	F	R	R^2	R^2_{ADJ}
Total Social Competence 1 (N=52)	-.01	-.15	.21	1.16	.26	.07	.01
School Competence 1 (N=52)	-.08	-.18	.22	1.37	.27	.08	.02
Total Behavior Problems 1 (N=53)	-.01	.26a	-.30*	3.23*	.40	.16	.11
Boys: Outcome Variables	**Warmth 1**	**Conflict 1**	**Social Preference 1**	**F**	**R**	**R^2**	**R^2_{ADJ}**
Total Social Competence 1 (N=61)	.14	-.02	.46***	7.51***	.53	.28	.24
School Competence 1 (N=61)	.06	-.08	.31*	3.04*	.37	.14	.09
Total Behavior Problems 1 (N=62)	-.04	-.22a	-.64***	10.95***	.60	.36	.33

ap < .10 *p < .05 **p < .01 ***p < .001

Table 21: Standard Multiple Regression for Time 1 of Longitudinal Sample of Children's Social and Behavioral Adjustment on Peer Relations With and Without Sex Controlled For.

Predictor Variables
Standardized Regression Coefficients

Outcome Variables	Sex	Warmth 1	Conflict 1	Social Preference 1	F	R	R^2	R^2_{ADJ}
Total Social Competence 1		-.07	-.08	.25*	2.06	.27	.08	.04
(N=79)	.00	-.07	-.08	.25*	1.53	.27	.08	.03
School Competence 1		-.06	-.17	.15	1.56	.24	.06	.02
(N=79)	.23**	-.08	-.14	.17	2.25a	.33	.11	.06
Total Behavior Problems 1								
(N=77)		-.02	.07	-.37***	4.52**	.39	.15	.12
	-.12	-.01	.05	-.39***	3.70**	.41	.17	.12

ap < .10 *p < .05 **p < .01 ***p < .001

Part 3: Are Three Levels Of Peer Relations Associated With Adjustment And Self-Perception At Time 2?

The first hypothesis proposed that the qualities of dyadic friendship, small group interactions, and classroom sociometric status are associated with social/behavioral adjustment and self-perception in fourth and fifth graders. Using a series of standard multiple regressions, social/behavioral adjustment and self-perception outcome variables were regressed on three types of peer relations predictor variables: dyadic friendship, small group interactions, and classroom sociometric status. These analyses provide the initial substantive findings of the dissertation. A limited number of selected outcome and predictor variables were used to reduce redundancy in the correlations of the individual variables.

In preview, there were seven outcome variables: three adjustment variables from the CBC (total social competence 2, school competence 2, and total behavior problems 2) and four self-perception variables from the SPP (social acceptance competence, scholastic competence, behavioral conduct competence, and global self-worth). These outcome variables were regressed, separately, on four peer relations predictor variables: two dyadic friendship variables (warmth 2 and conflict 2), one small group interaction variable (interact 2), and one peer group acceptance variable (social preference 2). The rationale for using these specific variables is based

on the previous research that children's friendships and group relations are related to social, school, and behavioral adjustment as well as self-perception (Bukowski et al., 1987; Hennessy Blum, 1991; Ladd, 1990). Analyses showed that all three levels of peer relations had significant effects on either parent-rated adjustment, children's assessments of self-perception, or on both forms of adjustment. Subtle sex differences are suggested by effect size estimates for conflict, small group interactions, and large group social preference.

Initial Substantive Findings: Associations Among Three Levels of Peer Relations With Adjustment and Self-Perception At Time 2. The primary and most important findings for the first hypothesis are presented on Table 22. In this series of multiple regressions, three levels of peer relations are related, overall, to adjustment as rated by parents and children. The levels of associations between peer relations and adjustment ranged from marginally to highly significant for six out of seven regression equations. For total behavior problems and social acceptance competence, the variance accounted for by peer relations was 20 and 28 percent, respectively.

Overall, as Table 22 shows, all three levels of peer relations made relatively weak to moderate contributions as significant predictors to adjustment and self-perception with variance accounted for, R-square, ranging from .03 to .28 and

Table 22: Standard Multiple Regression of Two Types of Children's Social and Behavioral Adjustment on Three Types of Peer Relations for Girls and Boys in 1992.

	Predictor Variables Standardized Regression Coefficients							
Outcome Variables	Warmth 2	Conflict 2	Interact 2	Social Preference 2	F	R	R^2	R^2_{ADJ}
Total Social Competence 2 (N=91)	.08	-.09	.22*	.22*	2.78*	.34	.11	.07
School Competence 2 (N=91)	.11	-.24*	.03	.09	2.30a	.31	.10	.05
Total Behavior Problems 2 (N=94)	-.02	.10	-.27**	-.36***	5.74***	.45	.20	.17
Social Acceptance 2 (N=118)	.37***	.02	-.01	.29***	11.25***	.53	.28	.26
Behavior Conduct 2 (N=118)	-.03	-.33***	.07	.17a	5.33***	.40	.16	.13
School Competence 2 (N=118)	.11	.02	.04	.11	.98	.18	.03	-.00
Global Self-worth 2 (N=118)	.08	-.25***	.07	.15	4.56**	.37	.14	.11

ap < .10 *p < .05 **p < .01 ***p < .001

effect size estimates, standardized regression coefficients, ranging from .00 to .37. Conflict was a significant negative predictor of behavioral conduct competence and global self-worth, as well as for parent rated school competence. Warmth was a significant positive predictor of social acceptance competence. Interact was a significant negative predictor of total behavior problems and a marginal positive predictor of total social competence. Social preference was a significant positive predictor of social acceptance competence and a negative predictor of total behavior problems as well as a marginally positive predictor of behavioral conduct and total social competence. Overall, social preference was the strongest predictor of the peer relation variables for adjustment and self-perception.

Socioeconomic Status and Sex Differences At Time 2. The same regressions were run again to assess the contributions sex and parents' socioeconomic status made in the overall relationship between peer relations and adjustment. A similar pattern of associations occurred between peer relations and adjustment when sex and parents' socioeconomic status were controlled for (see table 23). Controlling for sex and socioeconomic status did not change the overall trends in the equations because all four peer relation variables continued to be significant predictors in at least one regression. It is important to note the reduction in sample sizes when sex and socioeconomic status are added into the equation due to

Table 23: Standard Multiple Regression of Two Types of Children's Social and Behavioral Adjustment on Three Types of Peer Relations With Sex and Socioeconomic Status Controlled.

	Predictor Variables Standardized Regression Coefficients									
Outcome Variables	Socioeconomic Status 2	Sex	Warmth 2	Conflict 2	Interact 2	SP2	F	R	R^2	R^2_{adj}
Total Social Competence 2 (N=87)	.32**	.08	.05	-.02	.16	.17	3.33**	.44	.20	.14
School Competence 2 (N=87)	.19a	.20a	.06	-.17	-.03	.05	2.41*	.39	.15	.09
Total Behavior Problems 2 (N=90)	-.17a	-.12	.01	.02	-.23*	-.33**	4.04**	.47	.22	.17
Social Acceptance Competence 2 (N=88)	.08	-.05	.43***	-.06	.08	.24*	7.08***	.58	.34	.29
Behavior Conduct Competence 2 (N=88)	.02	.36***	-.12	-.17	.02	.24*	4.27***	.49	.24	.18
Scholastic Competence 2 (N=88)	.23*	.15	.07	.08	.06	.08	1.52	.32	.10	.03
Global Self-worth 2 (N=88)	.11	.10	.11	-.22a	.05	.06	2.15a	.37	.14	.07

ap < .10 *p < .05 **p < .01 ***p < .001

Note: Abbreviation listed above Social Preference 2 (SP2).

missing values in socioeconomic status. The effects of peer relations on adjustment and self-perception may be more robust with a larger sample (118 versus 88).

Socioeconomic status affected two associations between peer relations and adjustment. Socioeconomic status was a significant predictor in total social competence as rated by parents and scholastic competence as rated by children. These findings suggest that socioeconomic status in combination with small and large group dynamics may contribute to overall social competence.

Interpreting sex differences in the patterns of associations is more complicated. Sex was a significant predictor only for behavioral conduct competence, such that girls had higher levels of behavioral conduct competence than boys. This single sex difference is surprising. According to univariate analyses (see Table 18), there were sex differences with warmth 2, conflict 2, total behavior problems 2, school competence 2, and behavioral conduct competence 2. Additionally, Hennessy Blum (1991) reported differences in the patterns of associations between peer relations and adjustment for boys and girls. Therefore, regressions analyses were run again to test for sex interactions.

Sex Interactions at Time 2. Two significant sex interactions out of a possible 24 interactions appeared in time 2 concurrent analyses for parent-rated total behavior problems 2 and global self-worth self-perception 2. For total

behavior problems 2, there was a conflict by sex interaction, $B = -.61$, $p < .05$. For global self-worth 2, there was a social preference by sex interaction, $B = .82$, $p < .01$. The two significant interactions accounted for an R-square change in total behavior problems 2 and global self-worth 2 of .04 and .06, respectively.

Analyses by Sex at Time 2. To further examine differences in the patterns of associations, separate analyses by sex were performed on time 2 data. Tables 24 and 25 show separate analyses for girls and boys, respectively. For girls, peer relations in combination are related to total behavior problems, social acceptance competence, and global self-worth. Primarily, social preference was the significant predictor in all three associations, as well as with behavioral conduct competence. Warmth and interact were also significant predictors, while conflict was a marginal predictor.

For boys, peer relations in combination are related to social acceptance competence and behavioral conduct competence as well as marginally related to total social competence and total behavior competence. Overall, social preference was also the primary predictor for boys as well as girls in the associations. Warmth was a significant predictor for both sexes. Interact was a significant predictor for girls' parent rated adjustment, while conflict was a significant predictor for boys' self-perception. From separate analyses, subtle

Table 24: Standard Multiple Regression of Girls' Social and Behavioral Adjustment on Three Types of Peer Relations in 1992.

	Predictor Variables Standardized Regression Coefficients							
Outcome Variables	Warmth 2	Conflict 2	Interact 2	Social Preference 2	F	R	R^2	R^2_{ADJ}
Total Social Competence 2 (N=49)	-.02	-.05	.31*	.06	1.23	.31	.10	.02
School Competence 2 (N=49)	-.14	-.19	.19	.07	.84	.26	.07	-.01
Total Behavior Problem 2 (N=51)	.14	-.03	-.30*	-.47**	4.15**	.51	.26	.20
Social Acceptance Competence 2 (N=66)	.33*	-.05	-.02	.27*	5.43***	.51	.26	.21
Behavioral Conduct Competence 2 (N=66)	-.05	-.05	-.01	.34*	1.87	.33	.11	.05
Scholastic Competence 2 (N=66)	-.00	-.05	-.02	.21	.76	.22	.05	-.02
Global Self-worth 2 (N=66)	-.02	-.23a	.13	.42**	4.42**	.47	.22	.17

ap < .10 *p < .05 **p < .01 ***p < .001

Table 25: Standard Multiple Regression of Boys' Social and Behavioral Adjustment on Three Types of Peer Relations in 1992.

	Predictor Variables Standardized Regression Coefficients							
Outcome Variables	Warmth 2	Conflict 2	Interact 2	Social Preference 2	F	R	R^2	R^2_{ADJ}
Total Social Competence 2 (N=41)	.21	-.08	.14	.36*	2.39a	.45	.21	.12
School Competence 2 (N=41)	.25	-.22	-.15	.09	2.05	.43	.18	.09
Total Behavior Competence 2 (N=42)	-.19	.21	-.25	-.27a	2.46a	.45	.21	.12
Social Acceptance Competence 2 (N=51)	.40**	.03	.06	.33*	6.08***	.58	.34	.29
Behavioral Conduct Competence 2 (N=51)	-.10	-.44**	.07	.04	2.73*	.43	.19	.12
Scholastic Competence 2 (N=51)	.15	.08	.11	.06	.46	.19	.04	-.04
Global Self-worth 2 (N=51)	.11	-.35*	-.02	-.11	1.86	.37	.14	.06

ap < .10 *p < .05 **p < .01 ***p < .001

differences were apparent in the patterns of associations for boys and girls in outcome variables and predictors.

In summary, sex differences at time 2 were tested for in three ways: (1) sex as a predictor, (2) sex interactions, and (3) differences in the pattern of associations for boys and girls. The only sex difference when using sex as a predictor was behavior conduct self-perception competence. Sex interactions were found for total behavior problems with a conflict by sex interaction and for global self-worth with social preference by sex interaction. The trends suggest that girls and boys respond to conflict in different ways in relation to behavioral adjustment. At time 2, there were trends for a negative association between conflict and behavior problems for girls and a positive association between conflict and behavior problems for boys.

Additional differences were apparent in separate analyses for boys and girls. For total social competence, interact (small group) was a positive predictor for girls, while social preference (large group) was a positive predictor for boys. For total behavior problems, interact (small group) and social preference (large group) were negative predictors for girls, while social preference (large group) was a marginally negative predictor for boys. For social acceptance competence, warmth (dyadic) and social preference (large group) were the positive predictors for girls and boys. For behavior conduct competence, social preference (large group)

was the positive predictor for girls, while conflict (dyadic) was the negative predictor for boys. For global self-worth, negative conflict (dyadic) and positive social preference (large group) were the predictors for girls, while only negative conflict (dyadic) was the predictor for boys. All three levels of peer relations (dyadic, small group, and large group) were significantly associated with girls' adjustment, while only two levels (dyadic and large group) of peer relations were significantly associated with boys' adjustment.

Part 4: Are Early Peer Relations Predictive Of Later Adjustment?

The second hypothesis proposed that the quality of children's peer relationships; dyadic friendship and classroom sociometric status in second and third graders' will predict social and behavioral adjustment in the same children in fourth and fifth grade. Subjects included approximately 70 fourth and fifth graders who also participated in the Hennessy Blum (1991) study as second and third graders. Analysis of Partial Variance (APV; Cohen & Cohen, 1983) was the statistical method of data analysis used to predict later adjustment from early peer relations. The APV method is a special case of hierarchical multiple regression correlation (Cohen & Cohen, 1983, p. 402-403) applicable to the study of change over time.

On step one using hierarchial regression, adjustment at time 1 is entered into the equation. The variance associated

with adjustment at time 1 is removed from the outcome variable, adjustment at time 2. Variables entered in on later steps are assessed controlling for (or adjusting for or partialling out) the effects of adjustment at time 1. The remaining residuals from adjustment at time 2 are regressed on subsequent predictors. In step two, the residualized adjustment at time 2 is regressed on three peer relations predictors (social preference 1, warmth 1, and conflict 1) as well as socioeconomic status and/or sex. In step three, the residualized adjustment score at time 2 is regressed on four interaction terms: adjustment 1 by sex, social preference 1 by sex, warmth 1 by sex, and conflict 1 by sex.

At each step of APV analyses, the unique variance accounted for by each predictor is represented by the partial correlation (pr), while R-square values referred to the total variance accounted for in residualized adjustment at time 2 from social preference 1, friendship 1, sex, and socioeconomic predictor variables. The APV method allowed the outcome variable, residualized adjustment at time 2, to be corrected for shared variability with adjustment at time 1. As such, it is preferred over the change score method (postscore minus prescore) to assess change over time (Cohen & Cohen, 1983).

Predictive Associations Between Peer Relations And Adjustment. The most important findings of the longitudinal portion of the dissertation are found on Tables 26 and 27. A series of APV multiple regression analyses tested the

hypothesis regarding the predictive effects of peer relations (social preference 1, warmth 1, and conflict 1) as rated by children, sex of subjects, and socioeconomic status on later social competence and behavioral problems as rated by parents.

On Table 26, in step one, as might be expected, social competence 1 was the best predictor of social competence 2. Total social competence 1 accounted for 30 percent of the variance in total social competence 2. In step two, peer relations at time 1 in combination with sex and socioeconomic status were significantly associated with residualized total social competence at time 2. The five predictors in combination accounted for 14% of the variance in total social competence 2. Conflict at time 1 was the marginal predictor in the association. Conflict and warmth in friendship uniquely accounted for approximately 8% of the variance in total social competence 2, 5% and 3% respectively.

Similar associations did not emerge in APV regression analyses for peer relations at time 1 with residualized total behavior competence at time 2. In step one, prior behavioral competence was the best predictor of later behavioral competence. Total behavior competence at time 1 accounted for 34 percent of the variance in total behavior competence time 2. In step two, peer relations at time 1 in combination with sex and socioeconomic status were not significantly associated with residualized behavior adjustment at time 2. Yet, conflict 1 was a significant predictor of later behavior

Table 26: Analysis of Partial Variance from Longitudinal Data of Children's Later Adjustment from Early Friendship Controlling for Sociometric Status, Sex, and Socioeconomic Status.

Outcome Variables	Step	Predictor Variables	F Change	R^2 Change	pr	t
Total Social Competence 2 (N=62)	1	Total Social Competence 1	25.76***	.30	.55	5.08***
	2	Social Preference 1	2.81*	.14	.06	.44
		Warmth 1			.17	1.30
		Conflict 1			-.23	-1.74a
		Sex			.21	1.64
		Socioeconomic Status 2			-.18	-1.35
Total Behavior Problem 2 (N=61)	1	Total Behavior Problems 1	31.49***	.34	.59	5.61***
	2	Social Preference 1	1.18	.06	-.11	-.82
		Warmth 1			.06	.46
		Conflict 1			-.28	-2.14*
		Sex			-.11	-.83
		Socioeconomic Status 2			.07	.50

ap = .0872 *p < .05 **p < .01 ***p < .001

competence 2. APV analyses for sex and socioeconomic status offered no other significant findings. The trend suggests that conflict at time 1 is predictive of later behavior competence at time 2.

A second set of analyses further tested for sex interactions, based on the initial trends suggesting the predictive effects of peer relations on adjustment (see Table 27). Socioeconomic status was eliminated from analyses to increase power. APV analyses were repeated separately for social and behavioral adjustment. In step one, prior social competence 1 was again the best predictor of later social competence 2. Total social competence 1 accounted for 30 percent of the variance in total social competence 2. In step two, group acceptance and friendship (social preference 1, warmth 1, and conflict 1) in combination with sex were significant predictors of residualized total social competence 2. Sex was a marginal predictor of social adjustment at time 2. Early conflict and warmth uniquely accounted for approximately 6% of the variance in total social competence 2. In step three, four interaction terms (total social competence 1 by sex, social preference 1 by sex, warmth 1 by sex, and conflict 1 by sex) were not significant predictors of residualized total social competence at time 2.

For total behavior problems, a similar pattern of results occurred for steps one and two as was found earlier with behavioral adjustment. In step one, total behavior problems

Table 27: Analysis of Partial Variance from Longitudinal Data of Later Adjustment from Early Friendship Controlling for Sociometric Status and Sex.

Outcome Variables	Step	Predictor Variables	F Change	R^2 Change	pr	t
Total Social Competence 2 (N=63)	1	Total Social Competence 1	26.91***	.30	.55	5.19***
	2	Social Preference 1	2.80*	.11	.05	.41
		Warmth 1			.13	1.0
		Conflict 1			-.21	-1.66
		Sex			.24	1.90a
	3	Total Social Competence 1 x Sex	.25	.01	-.09	-.65
		Social Preference 1 x Sex			.02	.12
		Warmth 1 x Sex			.03	.24
		Conflict 1 x Sex			.11	.83

ap = .0625 *p < .05 **p < .01 ***p < .001

Table 27: (continued)

Total Behavior Problems 2 (N=62)	1	Total Behavior Problem 1	36.61***	.38	.61	6.05***
	2	Social Preference 1	1.88	.07	-.10	-.77
		Warmth 1			.10	.76
		Conflict 1			-.29	-2.32*
		Sex			-.14	-1.03
	3	Total Behavior Problems x Sex	68.50***	.46	.91	16.37***
		Social Preference x Sex			.33	2.59*
		Warmth 1 x Sex			-.06	-.47
		Conflict 1 x Sex			.19	1.44

ap = .0625 *p < .05 **p < .01 ***p < .001

1 accounted for 38% of the variance in total behavior problems 2. In step two, peer relations at time 1 and sex, overall, were not significantly predictive of residualized total behavior problems 2. Again, conflict 1 was a significant predictor. In step three, the four interaction terms at time 1 were significantly associated with total behavior problems 2, accounting for 46% of the variance in residualized total behavior problems 2. There were two significant interactions involving sex, total behavior problems 1 by sex and social preference by sex.

In summary, peer relations at time 1 were significant predictors of residualized total social competence at time 2. The trends suggest that early conflict at time 1 is predictive of later behavioral adjustment at time 2. Further analyses tested for interactions between sex and the peer relations predictors. Two significant interactions out of eight possible interactions concerning social and behavioral adjustment emerged for total behavior problems 2 between total behavior problems 1 by sex and social preference 1 by sex. These significant interactions suggest that peer relations predictors of adjustment vary by sex.

Part 5: Are There Reciprocal Effects With Early Social and Behavioral Adjustment As Predictors Of Later Peer Relations?

It is unclear whether peer relations influence adjustment, or whether adjustment influences the quality of peer relations. Of course, correlational analyses cannot

answer this question completely. However, we can examine time 1 and 2 correlations to see if, purely descriptively, predictors at time 1 predict adjustment at time 2 or if adjustment at time 1 predicts peer relations at time 2.

The last part of the results section tested for reciprocal effects with adjustment and self-perception as predictor variables and peer relations as the outcome variables. Two questions are posed. First, is the quality of children's parent-rated adjustment and self-perception associated with concurrent assessments of peer relations at time 2 ? Second, does early adjustment at time 1 predict later peer relations at time 2? Standard multiple regression analyses on time 2 data and APV multiple regression analyses on the longitudinal data were used to answer these questions. In the regression analyses previous outcome variables (total social competence 1 & 2, total behavior problems 1 & 2, social acceptance competence 2, behavioral conduct competence 2, scholastic competence 2, and global self-worth 2) acted as predictor variables, while previous predictor variables (warmth 2, conflict 2, interact 2, and social preference 2) acted as outcome variables.

Adjustment and Self-Perception As Predictor Variables Of Peer Relations For Time 2 Data. On Table 28 and Table 29, adjustment 2 as rated by parents and self-perception 2 as rated by children represented the predictor variables in reanalyses of time 2 data. Shown on Table 28 are separate

analyses for two CBC adjustment variables at time 2 and four SPP adjustment variables at time 2 entered in as a single units without and with controlling for sex and socioeconomic status. Presented on Table 29 are the results of all six adjustment variables at time 2 entered in together without and with controlling for sex and socioeconomic status. Sex and socioeconomic status were entered into the equations as a unit in the final step of the analyses. Inclusion of sex and socioeconomic status reduced sample sizes across analyses.

Two significant associations emerged between CBC adjustment and peer relations (see Table 28). Social and behavioral competence in combination are related to sociometric status and interact, accounting for 14 percent and 7 percent of the variance, respectively. Total behavior competence was a significant and marginal negative predictor of social preference and interact. Sex and socioeconomic status were not significant predictors in these associations.

Several other associations appeared with CBC adjustment and peer relations. One significant sex difference emerged for the association between warmth and adjustment. Marginal associations emerged between CBC adjustment and conflict in children's friendships with sex as the significant predictor.

Self-perception predictor variables had more significant associations with peer relations than parent ratings of adjustment (see Table 28). Self-perception was significantly related to warmth, conflict, and sociometric status. All four

Table 28: Standard Multiple Regression of Three Levels of Children's Peer Relations on Adjustment and Self-Perception for Girls and Boys in 1992 (N = 87).

	Predictor Variables Standardized Regression Coefficients						
Outcome Variables	Sex	Socioeconomic Status 2	Total Social Competence 2	Total Behavior Problems 2	F	R	R^2
Warmth 2			.09	-.17	2.19	.22	.05
Warmth 2	.27*	.07	.06	-.12	2.78*	.34	.12
Conflict 2			-.04	.12	.84	.14	.02
Conflict 2	-.27*	-.11	.01	.06	2.12a	.30	.09
Interact 2			.12	-.19a	3.17*	.26	.07
Interact 2	.05	.02	.12	-.18	1.60	.27	.07
Social Preference 2			.09	-.34**	7.10*	.39	.14
Social Preference 2	.04	.00	-.09	-.33**	3.51*	.38	.14

ap < .10 *p < .05 **p < .01 ***p < .001

Table 28 (continued, N = 88)

Outcome Variables	Sex	Socioeconomic Status 2	Social Acceptance Competence 2	Behavioral Conduct Competence 2	Scholastic Competence 2	Global Self-Worth 2	F	R	R^2
Warmth 2			.52***	-.12	.02	.12	8.65***	.54	.29
Warmth 2	.26**	.03	.53***	-.22*	.02	.09	7.32***	.59	.35
Conflict 2			-.08	-.23*	.26*	-.31*	4.12**	.40	.16
Conflict 2	-.19a	-.14	-.07	-.17	.28*	-.29*	3.60**	.46	.21
Interact 2			.04	-.03	.09	.01	.22	.10	.01
Interact 2	.11	.07	.03	-.06	.08	-.00	.35	.16	.02
Social Preference 2			-.34**	.15	-.00	-.01	4.18**	.41	.17
Social Preference 2	-.02	.08	.33**	.17	-.02	-.01	2.84*	.42	.17

ap < .10 *p < .05 **p < .01 ***p < .001

self-perception variables were significant predictors for one or more of the peer relations outcomes. Sex was a significant predictor of warmth and a marginal predictor of conflict but not a significant predictor of social preference or interact. Socioeconomic status was not a significant predictor in any of the associations.

The pattern of effects found in the associations between self-perception and peer relationships continued when CBC adjustment and SPP adjustment predictor variables were merged into one equation (see Table 29). Overall adjustment at time 2 is significantly related to warmth, conflict, and social preference at time 2. All four self-perception variables and total behavior competence were significant predictors in at least one regression. Sex was a significant predictor in only one association between warmth and adjustment.

To examine differences in patterns of associations for girls and boys, separate analyses were run for girls and boys with adjustment and self-perception as predictors and peer relations at time 2 as outcome variables. For girls, the results showed that social and behavioral adjustment is related to social preference, $F(2, 47) = 6.09$, $p = .0044$, R square = .21, and interact, $F(2, 47) = 3.67$, $p = .0332$, R square = .13, while self-perception is related to warmth, $F(4, 62) = 4.09$, $p = .0053$, R square = .21, and social preference, $F(4, 62) = 4.80$, $p = .0019$, R square = .24. For boys, the results showed that social and behavioral adjustment is

Table 29: Standard Multiple Regression of Peer Relations on Adjustment for Girls and Boys in 1992 (N=79).

	Predictor Variables Standardized Regression Coefficients										
Outcome Variables	Sex	Socio-economic Status 2	Total Social Competence 2	Total Behavior Problem 2	Social Acceptance Competence 2	Behavioral Conduct Competence 2	Scholastic Competence 2	Global Self-worth 2	F	R	R^2
Warmth 2 ***			-.01	-.02	.56	-.09	.06	.05	6.51	.58	.33
Warmth 2 ***	.33	.01	-.03	.03	.58	-.23	.09	.03	6.89	.65	.42
Conflict 2 *			-.03	.08	-.07	-.27	.27	-.27	2.77	.42	.17
Conflict 2 *	-.18	-.12	.01	.05	-.07	-.21	.27	-.25	2.53	.46	.21
Interact 2			.14	-.20	-.01	-.00	.03	-.01	1.09	.28	.08
Interact 2	.04	.02	.13	-.19	-.01	-.02	.03	-.02	.81	.28	.08
Social Pre-ference 2 **			.05	-.27	.25	.17	-.03	-.04	4.07	.49	.24
Social Pre-ference 2 **	-.04	-.01	.05	-.27	.25	.19	-.03	-.04	3.00	.49	.24

*p < .05 **p < .01 ***p < .001

Note. Significance levels for F values are indicated below each listed outcome variable.

related to social preference, F(2, 39) = 4.27, p = .0210, R square = .18, while self-perception is related to warmth, F(4, 47) = 4.57, p = .0034, R square = .28, conflict, F(4, 47) = 4.55, p = .0034, R square = .28, and social preference, F(4, 47) = 3.21, p = .0207, R square = .21.

In summary, parent-rated social/behavioral adjustment is related to small group interactions and sociometric status, while children's self-perceptions are associated with warmth and conflict in dyadic friendship for time 2 concurrent analyses. These findings suggested that reciprocal relationships existed between peer relations and children's adjustment. Analyses suggested that there were differences in the patterns of associations between adjustment and peer relations for girls and boys. Adjustment is associated with small group interactions for girls but not for boys, while self-perception is associated with conflict for boys but not for girls at time 2 concurrent assessments.

Social and Behavioral Adjustment As Predictors Of Peer Relations For The Longitudinal Data. Shown on Table 30 through Table 32 are the longitudinal results of APV analyses for predicting dyadic friendship (warmth and conflict) at time 2 from earlier social and behavioral adjustment at time 1. As indicated on Table 30, APV analyses followed specific steps. Initially at step one, each friendship variable at time 2, is adjusted for friendship at time 1. In step two, the residualized friendship outcome variables at time 2 then are

Table 30: Analysis of Partial Variance for Longitudinal Data of Later Friendship From Early Adjustment.

Outcome Variables	Step	Predictor Variables	F^{Change}	$R^{Change\ 2}$	pr	t
Warmth 2 (N=74)	1	Warmth 1	7.92**	.10	.31	2.81**
	2	Total Social Competence 1	2.59a	.09	-.13	-1.09
		Total Behavior Competence 1			-.02	-.20
		Sex			.29	2.52*
	3	Total Warmth 1 x Sex	1.62	.01	-.04	-.34
		Total Social Competence 1 x Sex			-.25	-2.11*
		Total Behavior Problems x Sex			-.06	-.50

ap = .0597 bp = .0737 *p < .05 **p < .01 ***p < .001

Table 30: (continued)

Conflict 2 (N=74)	1	Conflict 1	.67	.01	.10	.82
	2	Total Social Competence 1	4.96**	.17	-.21	-1.82b
		Total Behavior Competence 1			.04	.30
		Sex			-.35	-3.16**
	3	Conflict 1 x Sex	1.69	.06	.21	2.00*
		Total Social Competence x Sex			-.10	-.97
		Total Behavior Problem x Sex			-.09	-.87

ap = .0597 bp = .0737 *p < .05 **p < .01 ***p < .001

regressed separately on the two adjustment variables at time 1 in combination with sex as a unit. Finally on step three, residualized friendship variables are regressed on three interaction terms to test for sex interactions.

Overall, social competence 1, behavioral problems 1, and sex were marginally associated with warmth and significantly associated with conflict in later friendships at time 2 (see steps 2 of Table 30). Sex was the only significant predictor in both regressions. Overall, the interaction terms were not significantly associated with the friendship variables at time 2. Out of six possible interactions between sex and the predictors, there were two significant interactions (see steps 3 of Table 30). For warmth 2, there was a total social competence by sex interaction. For conflict 2, there was a conflict 1 by sex interaction.

Reciprocal Analyses by Sex. To better understand the differences in the patterns of associations for girls and boys, the data was split by sex and the analyses repeated. The sample sizes for these analyses were small, (N = 37 for girls and N = 36 for boys). Separate analyses for girls and boys are shown on Table 31 and Table 32. Girls' social and behavioral competence at time 1 were marginal predictors of warmth at time 2. Early social competence was a significant negative predictor of later warmth in friendship. Note warmth at time 1 is not predictive of warmth at time 2. Girls' social and behavioral adjustment at time 1 were significant

Table 31: Analysis of Partial Variance for Longitudinal Data of Later Friendship From Early Adjustment for Girls (N=37).

Outcome Variables	Step	Predictor Variables	F^{Change}	$R^{Change\ 2}$	pr	t
Warmth 2	1	Warmth 1	2.17	.06	.24	1.48
	2	Total Social Competence 1			-.35	-2.20*
		Total Behavior Competence 1	2.67a	.13	-.12	-.72
Conflict 2	1	Conflict 1	5.10*	.12	.35	2.26*
	2	Total Social Competence 1			-.45	-2.90**
		Total Behavior Competence 1	4.61*	.19	-.16	-.92

ap = .08 *p < .05 **p < .01 ***p < .001

Table 32: Analysis of Partial Variance for Longitudinal Data of Later Friendship for Early Adjustment for Boys (N=36).

Outcome Variables	Step	Predictor Variables	F Change	R^2 Change	pr	t
Warmth 2	1	Warmth 1	4.10a	.11	.32	2.02b
	2	Total Social Competence 1			.13	.75
		Total Behavior Competence 1	.33	.02	-.01	-.04
Conflict 2	1	Conflict 1	.58	.02	-.13	-.76
		Total Social Competence			-.11	-.61
		Total Behavior Competence	.43	.03	.08	.46

ap = .0507 *p < .05 **p < .01 ***p < .001

predictors of conflict at time 2. Note that both the associations between adjustment and friendship were negative. Early social and behavioral competence accounted for 19 percent of the variance in girls' conflicted friendships. High social competence at time 1 is associated with low conflict and low warmth in girls' later friendships. There were no significant relationships between adjustment and friendship for boys on Table 32.

Overall, early adjustment was predictive of conflict in girls' later friendship. The negative direction of effects for the marginal relationship between warmth and social competence for girls is difficult to explain. These confusing findings may be due to small sample sizes and type 1 error. In terms of reciprocal effects, early friendship appeared to be more predictive of later adjustment on Table 27 than early adjustment as predictors of later friendship on Table 30. The theme of sex differences in the relationship between conflict and adjustment appears here as it has in previous concurrent sex interaction analyses at time 1 and 2. Analyses suggested that over time the relationship between conflict and adjustment changes for girls and boys in different ways.

IV. DISCUSSION

Are Friendship and Peer Acceptance Associated With Adjustment at Time 1?

Reanalyzed data from time 1 showed that for second and third graders large group acceptance or sociometric status is associated with social, school, and behavioral competence as rated by parents. Children high in social preference with peers were at low risk for social maladjustment, poor school performance, and behavior problems. Findings showed that sociometric status, not dyadic friendship, is the primary predictor of adjustment for second and third graders.

A series of differences emerged between the sexes at time 1. There were sex differences in school competence such that girls had higher school competence. There were sex differences in the relationships between peer group acceptance and behavior adjustment as well as between conflict in friendship and behavior adjustment. There were also differences in patterns of associations for girls and boys between peer relations and adjustment for social preference with effect sizes moderate to high for boys and small for girls. Boys' peer relations were significantly associated with school and social competence, while there were no significant associations for girls. Similar patterns of associations emerged with children two years older.

Are All Three Levels Of Peer Relations Associated With Two

Types Of Adjustment at Time 2 of the Follow-up Study?

A primary purpose of the study was to examine associations, concurrently, among three levels of peer relations and social/behavioral adjustment as assessed by parents and children. The first hypothesis was that three levels of peer relations (dyadic friendship, small group interactions, and classroom sociometric status) would be concurrently associated with social/behavioral adjustment and self-perception in fourth and fifth graders. The findings showed that sociometric status is associated with adjustment and self-perception, friendship warmth is positively associated with self-perception, friendship conflict is negatively associated with school competence and self-perception, and small group interactions are associated with adjustment.

In fourth and fifth graders, sociometric status had the largest effect size of the predictor variables showing significant associations with adjustment as rated by parents as well as with children's ratings of self-perception. Socially preferred children were rated low in behavior problems by parents and perceived themselves as socially accepted by peers and behaviorally competent. In addition, conflict and warmth in friendships and small group interactions were related to adjustment and self-perception. Children with low conflict in their friendships viewed themselves as worthy and behaviorally competent. Children

with warm friendships viewed classmates as highly accepting of them. Children who were active and prosocial in the small group activity were low in behavior problems. These findings are important because they showed support for the first prediction of the first hypothesis that all three levels of peer relations are differentially related to adjustment and self-perception.

Previous research in the risk literature showing associations between peer relations and adjustment (Newcomb et al., 1993; Parker & Asher, 1987) did not delineate between the differential contributions made by these three levels of peer relations. The dissertation findings suggested that the various levels of peer relations were relatively independent of each other and served different functions in children's development. In addition, as presented below, boys' and girls' peer relations have both differential and similar effects on adjustment and self-perception.

Are There Sex Differences in the Patterns of Association at Time 2 of the Follow-Up Study?

Sex difference appeared with self-perceptions of behavioral conduct competence having a moderate effect size. Girls had higher levels of behavioral conduct competence than boys. There were sex differences in the relationships between conflicted friendship and behavior problems as well as between peer group acceptance and global self-worth. All three levels of peer relations (friendship, small group interactions, and

sociometric status) are associated with girls' adjustment and self-perception, while friendship and sociometric status are associated with adjustment and self-perception for boys. In terms of adjustment as rated by parents, boys' adjustment is associated primarily with large group peer acceptance (sociometric status), while girls' adjustment is associated with both large group acceptance and small group relations. Overall, sex differences in the pattern of associations were subtle with rather small effect sizes.

Small group interactions accounted for the most variance in overall social adjustment for girls. This finding is important because it is only by this difference in the pattern of association for girls that support for the second prediction of the first hypothesis is found for small group relations as the best peer relations predictor for adjustment. This difference in pattern of association for girls is consistent, in part, with previous research that girls tend to interact in small groups, while boys tend to interact in larger groups (as cited in Eder & Hallinan, 1978, p. 237). Small group relations may serve to transition girls from dyadic relationships to large group relations. Starting in the fourth grade, the number of cliques steadily increases in classrooms (Hallinan, 1979). According to Eder (1985), girls become more concerned with popularity between late childhood and early adolescence as friendships become a means to facilitate sociometric status.

In terms of self-perception, boys are affected primarily by friendship conflict, while girls are affected primarily by large group acceptance (sociometric status). Initially, these association patterns that large group acceptance affected girls, while friendship affected boys appear to be contrary to the sex difference literature. Previous research suggests that girls are more concerned with friendships than boys, while boys play in larger groups than girls (Gavin & Furman, 1989; Ladd, Price, & Hart, 1990). Yet, these current study findings are consistent with other research that girls become more concerned with popularity between late childhood and early adolescence (Eder, 1985) and that boys display more conflict with peers than girls (Shantz, 1986 as cited in Hartup, 1993).

Despite differences in patterns of associations, for boys and girls, peer relationships are associated with children's self-perceptions of adjustment and parents' ratings of adjustment. This underscores the importance of focusing on children's perceptions as well as parent ratings of adjustment in risk research as suggested by Parker and Asher (1987). Further similarities between the sexes appeared in patterns of associations for self-perceptions of social acceptance with friendship warmth and classroom peer group acceptance. The findings suggested that children may assess their social position in the classroom based on warmth in their friendships and peer assessments of them. Peer relations were not related

to scholastic competence as rated by parents or by children for either boys or girls.

Are Early Peer Relations Predictive of Later Adjustment In The Longitudinal Follow-up Study?

The second hypothesis was that the quality of two levels of children's peer relations (dyadic friendships and classroom sociometric status) in second and third graders would predict later social/behavioral adjustment in the same children in fourth and fifth grade. Early peer relations, primarily conflicted friendships, predicted later social competence. There was a trend that suggested that early conflicted friendship was predictive of later behavior problems. Overall, the concurrent and across time findings and trends supported the study hypotheses that different levels of peer relations are associated with and predictive of children's social and behavioral adjustment.

The sex differences for girls and boys in the relationship between early peer group acceptance and later behavioral adjustment suggested that sex may act as a moderating variable. These findings are similar to the results by Coie et al. (1992) who found that sex was a moderator of early peer rejection in predicting later maladjustment. In the Coie et al. (1992) study, "being male, being more socially rejected, and being more aggressive than other children leads to increasing difficulty in adjusting to middle school." (p. 787). Like the Coie et al. (1992) study,

the current study found that boys with low peer acceptance and conflicted friendship in early elementary school tended to be at risk for high behavior problems in middle school.

Conflict in friendships at time 1 is most associated, of all the peer relations predictors, with overall social and behavioral competence at time 2. Second and third graders with highly conflicted friendships tended to have low social competence in fourth and fifth grade. Trends also suggested that these children with early conflicted friendships have high behavior problems in fourth and fifth grade as well. Overall, these findings suggested that children with conflicted friendships early in elementary school were at risk for being socially and behaviorally maladjusted later in middle school.

These associations are consistent with the findings from the risk literature (Parker & Asher, 1987). According to the risk hypothesis, problematic peer interactions lead to social maladjustment. Follow-back and follow-up data analyses of the risk literature indicate that aggressiveness is an index of problematic peer relationships predictive of later juvenile delinquency and adult criminality (Parker & Asher, 1987). In these analyses aggressiveness is referred to as a behavioral style. The current findings suggested that it is conflict in friendships, not necessarily conflict or aggression within specific individuals, that is related to maladjustment.

Hartup (1993) proposes that conflict and aggression are

often synonymous terms in the risk literature. He suggests that aggressive and non-aggressive conflicts need to be differentiated. The friendship dimension "conflict" in the current study is defined as quarreling, antagonistic, and competitive behavior in a close friendship relationship (Furman, 1989.) Therefore, it was aggressive conflict involving a high degree of fights, insults, anger, and competition in friendship that was most problematic for long term social adjustment.

Yet, concurrent associations between peer relations and adjustment from the first hypothesis, showed that low peer group acceptance was the most critical factor. These findings are consistent with the risk literature as well. In fact, the risk hypothesis literature uses sociometric status or peer acceptance as the primary means of assessing the quality of peer relations. Moreover, low peer acceptance and aggressiveness were the two factors in the risk literature found to be statistically most associated with adjustment problems later in life (Parker & Asher, 1987).

Current findings suggested that aggressive conflict in friendship affected long term adjustment, while sociometric status affected concurrent adjustment. Townsend et al. (1988) and Vernberg (1990) find that intimacy in friendship and popularity to be two unique predictors of adjustment both concurrently and across time. Therefore, both the quality and level of peer relationships were important aspects of peer

relations and adjustment.

Are There Reciprocal Effects With Early Adjustment Predicting Later Peer Relations?

The findings suggested that there are reciprocal relationships in associations for adjustment to predict peer relations as well as peer relations to predict adjustment. When adjustment and self-perception are treated as predictors and peer relations as outcomes, concurrent analyses showed that adjustment is related to small group interactions and sociometric status, while self-perception is related to friendship warmth and conflict, as well as sociometric status. Socially competent children with low behavior problems were active and displayed prosocial behaviors in small groups. They were also socially preferred by classmates. In addition, children who viewed themselves as socially accepted by their peers tended to have close, warm friendships, while children who viewed themselves as scholastically competent with low self-worth tended to have conflicted friendships.

In the longitudinal findings, the reciprocal effects suggested that early social adjustment predicted later conflict in girls' friendships. Both the concurrent and longitudinal findings were consistent with earlier findings by Vernberg (1990) who found that three types of experiences with peers (amount of contact with friends, intimacy with best friend, and rejection by peers) predicted adjustment as well as adjustment being predictive of peer experiences. Vernberg

suggests that a cyclic pattern is created, whereby, poor peer relations lead to increases in maladjustment, and greater maladjustment increases the likelihood of problematic peer relations. The current results offered evidence for reciprocal relationships with peer relations predicting adjustment as well as adjustment predicting peer relations, concurrently and across time.

There were differences in the patterns of association for reciprocal relationships between adjustment and dyadic friendships for girls and boys. In concurrent associations, adjustment is related with small group interactions for girls and self-perception is related with conflict for boys. Longitudinally, early adjustment was predictive of conflict in girls' later friendships but not predictive of boys' friendships.

Follow-up Study Limitations

Attrition. There are several limitations in the present study. Attrition in the number of subjects is a well known liability in longitudinal research. Approximately thirty-five percent of the original subjects from time 1 assessment were not available at time 2 assessment. Given that the overall sample size was less than one-hundred subjects and still smaller when split by sex, the longitudinal findings are limited by less power due to a smaller sample as compared to the original sample. Yet, analyses showed that there were no significant differences between subjects who dropped out of

the study and subjects who continued in the follow-up.

Nonindependence. The peer relations variables all have some degree of statistical dependency. Design and analysis of statistical dependencies in developmental study is a common challenge to researchers (Appelbaum & McCall, 1983). Conflict and warmth in friendship are determined by individual children's assessment of their friend. In some cases, the friend selection was mutual, but for others selections were not mutual. Differences in the degree of friendship mutuality may result in assessments that are quantitatively and qualitatively unique. For example, Vandell and Hembree (1993) found that mutual friendships were "unique predictors of children's adjustment (p. 2)." They also found that rejected children who had mutual friends were better adjusted than rejected children without mutual friends.

In small group interactions, individuals' scores were dependent on group interactions and type of group membership they experienced. Within the groups, specific interactions are coded multiple times to assess each child's behavior. Furthermore, children's levels of interactions may be influenced by friends versus non-friends status.

In terms of sociometric status, the type of classroom children were in may have affected their level of peer group acceptance. Some children may have a strong affiliation to their particular classroom, while other children may not have strong affiliation to their class. Overall, assessments of

peer relations may be influenced by the children's milieu such as community values, school norms, and student population. In general, sociometric technique is a very gross index of social status and peer group acceptance. The nomination technique to define peer group acceptance limits the number of children liked-the-most to three classmates and the number of children liked-the-least to three classmates. Therefore, additional friendships in the group are not considered in sociometric calculations. The subtleties of interpersonal relationships are not incorporated into sociometric assessments. Thus, sociometric indicators are extremely limited in detecting the more complex features of children's social environments.

Despite the methodological limitations of sociometric technique, researchers find that through sociometric technique "10% to 20% of children are 'not liked' by their classmates" (Cillessen et al., 1992, p. 893; Coie et al., 1982). According to Cillessen et al. (1992), these rejected children consist of four subtypes: aggressive-rejected, shy-rejected, antisocial moderate-rejected, and prosocial moderate rejected. Of the four subtypes, approximately 60% of aggressive-rejected boys tended to remain rejected by classmates over time, while the other three types changed their sociometric classification. The research suggests that peer rejected children who are aggressive are most at-risk due to chronic rejection. The chronic rejection pattern by peers of aggressive-rejected children also suggests that peer relations

are important predictors of later adjustment.

Socio-cultural Context. The sample of the current study was very homogeneous. The subjects were primarily white middle class Americans, from small New Hampshire towns. Applications of the findings are restricted to this group of children and their families. Social constructivist theorists "emphasize the influence of social context, the value of culturally relevant social activity, and the contributions that individuals make to their own learning." (Mallory & New, in press, p. 17). The sociocultural context of children's classroom, community, and culture is no doubt an important issue in the relationship between peer relations and adjustment, one that has received little systematic study to date. The culture, the community, and the classroom create the social norms by which children form and maintain relationships with each other. Perhaps by changing the norms regarding friendship and group relations, conflicted friendships and peer rejection could be managed on an on-going basis.

Social Policy Implications

The study showed further support for the risk hypothesis that difficulties in specific peer relations are related to problematic adjustment and self-perception. These findings are of potential benefit and application to intervention programs in schools and community settings for children in classrooms, small groups and friendships. Additionally, the

findings suggested that dynamics of peer relations have different applications between girls and boys.

The classroom group has a powerful effect on children. Boys appear to be most susceptible to the forces of this large group early on in elementary school, while girls are more affected in later childhood. Therefore, teachers and leaders of children need to be aware of these effects when directing large groups. Threats to a child's social status may put that child at risk for adjustment problems. Management of public insults, scapegoating, and other related social status and self-esteem issues are important. Techniques for enhancing social status through classroom norms and activities may be helpful. Children vary in abilities. Identifying children's abilities, however small, may assist in channeling children into average or higher status positions within the large group. Research on dominance hierarchies suggests that leadership in the group, which is related to high social status, is based on specific skills, knowledge, and expertise (see Hartup, 1983 for review). As children become aware of their unique skills and potential abilities, they have the opportunity to become leaders for activities related to their specific abilities.

In terms of small group dynamics, active group participation and prosocial behaviors are related to behavioral adjustment. Group organization and structured activities that allow less active children more participatory

time may increase levels of interaction. As sex differences suggest, this type of intervention may be especially important with girls. Girls' adjustment tended to be more associated with small group dynamics than boys' adjustment.

Of all the different levels of peer relationships, dyadic friendship may be primary. Conflicted friendship was predictive of both concurrent and long-term adjustment. These findings suggested that the degree of conflict and aggression within a close relationship is associated with adjustment. Therefore, conflict resolution may be an important factor for managing conflict in friendships. Teaching strategies for conflict resolution in early elementary school may prevent long term relationship and adjustment problems. Eder and Hallinan (1978) suggest that such strategies may be more critical for girls due to their tendency to be exclusive with friends (p. 247).

Educational Reform. Early intervention programs to help children at-risk that simply stressed frequency of peer interactions were unsuccessful (see Coie & Koeppl, 1990; Hymel, Wagner, & Butler, 1990, for reviews). In fact making at-risk children the sole target of reform may have resulted in furthering their social isolation. Schools, teachers, and parents are extremely sensitive and often resistive when attempts are made to identify and intervene on peer rejected children, despite their needs. Interventions become successful when the focus is on children's motivation,

cooperation, and feedback in the peer group (Bierman, 1986).

Researchers agree that 10% to 20% of children are rejected by their peers (Cillessen et al., 1992; Coie et al., 1982). Over time a significant proportion of these children remain rejected. In fact the current study found that 19% of the time 1 children and 23% of the time 2 children were rejected by their classmates. These findings are astonishing. It is not enough to simply develop intervention programs for children at-risk that are successful. Intervention for children at-risk must become a social policy concern for educational reform.

Researchers suggest that cyclical patterns are created both in how children become rejected within their peer group (Price & Dodge, 1986) and in the reciprocal relationships between peer relations and adjustment (Vernberg, 1990). It is not the target child that needs the intervention, the whole peer group needs to learn how to manage aggression and conflict. In turn, conflict resolution can lead to improved peer relations.

Future Research

The study provides insight into the unique roles of friendship, small group dynamics, and sociometric status in relation to adjustment and self-perception. The findings have direct applications for schools and child-centered settings. For example given that conflicted friendships predicted long-term adjustment and researchers find that aggressive-rejected

children are most at-risk, conflict management and resolution techniques taught in the schools may serve to improve children's overall adjustment. Intervention approaches could be developed that utilize all three levels of peer relations and experimentally test the causal and reciprocal relationships between peer relations and adjustment. Parker and Asher (1987) propose that it is only through intervention studies that causal nature of poor peer relations and maladjustment can be assessed. In addition, several aspects of the study need further follow-up including assessment perspectives, mutuality in friendship, the importance of negative interactions, sex differences, and the differential contributions of various peer relations.

Assessment Perspectives. In terms of assessment perspectives, Hartup (1993) distinguishes between insider and outsider views when assessing friendship. He suggests that researchers try to capture both aspects. In the current study dyadic friendship is assessed from the insiders' perspective, while small group dynamics are assessed from outsiders' views. It would be important in future studies to assess the concurrent and long-term effects of peer relations from both insiders and outsiders.

Mutual and Non-mutual Friendships. Mutuality in friendship assessment is also important. Besides the quality of friendships, mutuality, non-mutual friendships, and total number of friends are potential predictors of adjustment.

Vandell and Hembree (1993) find that mutuality is predictive of adjustment. Additionally, mutuality is associated with the number of friendships. Therefore, the current findings suggest that it is not only the level of peer relationships, but the characteristics of relationships that are important as well. Perhaps, best friend relationships may deal with conflict differently than more casual friendships. Best friends may be able to tolerate higher levels of conflict, while casual friends may terminate the relationship when conflict is high.

Negative Group Interactions. Small group interactions represent a unique level of peer relations in the dissertation. Unfortunately, the low frequency of negative interactions limited analyses. Further attention needs to be given to negative as well as positive and neutral interactions. Hartup (1993) cites that the ratio between agreements and disagreements in children's friendship is 2:1. Further exploration of small group dynamics may show a similar ratio between positive and negative interactions in the small group.

Sex Differences. Sex differences were inconclusive in the association between peer relations and adjustment. This is due to the relatively small sample sizes of boys and girls in the study. Parker and Asher (1987) identify that within the risk literature sex differences have not been established. Future research needs to focus on sex differences because the

current study and other research suggest that boys and girls deal with peer conflict and the many forms of peer relations in different ways (Gavin & Furman, 1989; Ladd, Price, & Hart, 1990; Hartup, 1993).

The Implications of Multi-levels of Peer Relations on Developmental Theory. Previous researchers suggest that peer relations comprise multiple levels including dyadic friendship, small group relations, and crowd relations (Brown, 1989; Bukowski & Hoza, 1989; Furman, 1990). These researchers propose that the various levels of peer relationships exert differential influences on children's social development. Analyses from the current study suggested that these various levels of peer relations may have different functions at varied developmental age levels and between the sexes. For example, sex interactions in the associations between peer relations and adjustment showed trends that conflict in friendships can have positive or negative effects depending on the sex and age of the child. Perhaps, conflict for second grade boys is used to stimulate positive same-sex peer relationships through rough and tumble play, while for second grade girls rough and tumble play is not considered appropriate play. Later in middle school, the role of conflict may change hampering friendships for boys, while for girls conflict may serve to ultimately strengthen friendship bonds. Therefore depending on children's age and sex, conflict in friendship may be viewed and experienced as

healthy competition or negative norm breaking behavior.

Peer group acceptance and rejection may also have different functions in relation to children's adjustment and self-perception based on age and sex. At time 1 boys' group relationships had significantly stronger effects on adjustment than girls'. At time 2 social preference was relevant to girls' global self-worth but not relevant to boys'. These sex difference findings suggest that sex may act as a moderating factor in the relationship between multiple levels of peer relations and adjustment both within and across time. Such findings are relevant to developmental theory in peer relations. Further research must be directed at understanding and confirming these potential sex and age differences.

Conclusion

The current study suggested that different levels of peer relations, friendship, small group relations, and peer acceptance, are important in children's lives and make unique contributions to adjustment and self-perceptions. The many forms that children's peer relationships take need to be examined as relatively independent phenomena. Research needs to test whether different levels of peer relations are hierarchical in nature and vary depending on children's age and sex.

It may be that success in the small groups is dependent, in part, on success in dyadic friendship. Small group relations, in turn, may be effective transitional groups for

successful peer acceptance in the larger groups like the classroom setting. The meaning of successful friendships and group relations may vary across time and have different functions for boys and girls. This type of developmental perspective on peer relations may have educational and social applications. Intervention programs and educational reform for children at-risk need to implement and integrate all three levels of peer relations: conflict resolution in friendships, the benefits of active prosocial interactions in small groups, and the importance of managing peer group rejection. Additionally, intervention programs need to test experimentally causal and reciprocal relationships over time between peer relations and adjustment.

REFERENCES

Achenbach, T. (1991). The Child Behavior Checklist for Ages 4-18. Burlington: University of Vermont, University Associates in Psychiatry.

Achenbach, T. (1978). The child behavior profile: I. boys aged 6-11. Journal of Counseling and Clinical Psychology, 46, 478-488.

Achenbach, T., & Edelbrock, C. (1979). The child behavior profile: II. boys age 12-16 and girls aged 6-11 and 12-16. Journal of Counseling and Clinical Psychology, 47, 223-233.

Achenbach, T., & Edelbrock, C. (1983). Manual for the Child Behavior Checklist and Revised Child Behavior Profile. Burlington: University of Vermont, Child Psychiatry.

Adler, T. F., & Furman, W. (1988). A model for children's relationships and relationship dysfunctions. In S.W. Duck (Ed.), Handbook of Personal Relationships (pp. 211-229). London: John Wiley & Sons Ltd.

Ainsworth, M. D. S. (1972). Attachment and dependency: A comparison. In J. Gewirtz (Ed.), Attachment and Dependency (pp. 97-137). Washington, D.C.: V. H. Winston & Sons.

Almack, J. C. (1922). The influence of intelligence on the selection of associates. School and Society, 16, 529-530.

Appelbaum, M., & McCall, R. (1983). Design and analysis in developmental research. Handbook of Child Psychology, vol. 1, pp. 413-476.

Asher, S. R. (1990). Recent advances in the study of peer rejection. In S. R. Asher and J. D. Coie (Eds.), Peer Rejection in Childhood (pp. 3-14). NY: Cambridge University Press.

Baumrind, D. (1971). Current patterns of parental authority. Developmental Psychology Monographs, 4, 1-103.

Baumrind, D. (1977, March). Socialization Determinants of Personal Agency. Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans.

Bennis, W. G., & Shepard, H. A. (1970). Group observation. In T. M. Mills and S. Rosenberg (Eds.), Readings on the Sociology of Small Groups (pp. 118-127). NJ: Prentice-Hall, Inc.

Bierman, K. L. (1986). Process of change during social skills training with preadolescents and its relations to treatment outcome. Child Development, 57, 230-240.

Bigelow, B. J. (1977). Children's friendship expectations: A cognitive developmental study. Child Development, 48, 246-253.

Blake, R., & McCanse, A. (1989). The rediscovery of sociometry. Journal of Group Psychotherapy, Psychodrama, and Sociometry, 42, 148-165.

Bowlby, J. (1969). Attachment and Loss, Vol. I:Attachment. NY: Basic Books, Inc.

Bowlby, J. (1973). Attachment and Loss, Vol. II: Separation. NY: Basic Books, Inc.

Brown, B. B. (1989). The role of peer groups in adolescents' adjustment to secondary school. In T. J. Berndt and G. W. Ladd, Peer Relationships In Child Development (pp. 188-215). NY: John Wiley & Sons, Inc.

Bukowski, W. M. (1990). Age differences in children's memory of information about aggressive, socially withdrawn, and prosociable boys and girls. Child Development, 61, 1326-1334.

Bukowski, W. M., & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement, and outcome. In T. J. Berndt and G. W. Ladd, Peer Relationships In Child Development (pp. 15-45). NY: John Wiley & Sons, Inc.

Bukowski, W. M., Hoza, B., & Newcomb, A. F. (1987). Friendship, popularity, and the "self" during early adolescence. Unpublished manuscript.

Cillessen, T., Ferguson, T. J., van Lier, P., & Hoeben, S. (1987). On the self-perpetuating nature of children's peer relationships. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Baltimore, MD, April 23-26, 1987.

Cohen, J., & Cohen, P. (1983). Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences, 2nd edition, Hillsdale, NJ: Erlbaum.

Coie, J., Dodge, K., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. Developmental Psychology, 18, 557-571.

Coie, J. D., & Koeppl, G. K. (1990). Adapting intervention to the problems of aggressive and disruptive rejected children. In S. R. Asher and J. D. Coie (Eds.), Peer Rejection in Childhood (pp. 309-337). NY: Cambridge University Press.

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. Journal of Consulting and Clinical Psychology, 60, 783-792.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). Equality of Educational Opportunities. Washington, D.C.: U.S. Government Printing Office.

Cowen, E., Pederson, A., Babigian, M., Izzo, L., & Trost, M. (1973). Long-term follow-up of early detected vulnerable children. Journal of Consulting and Clinical Psychology, 41, 438-446.

Damon, W. (1977). The Social World of the Child. San Francisco: Jossey-Bass.

Dodge, K. A. (1983). Behavioral antecedents of peer social status. Child Development, 54, 1386-1399.

Dodge, K. A., Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression in boys' groups: Developmental and contextual analyses. Child Development, 61, 1289-1309.

Eder, D. (1985). The cycle of popularity: Interpersonal relations among female adolescents. Sociology of Education, vol. 58, 154-165.

Eder, D., & Hallinan, M. (1978). Sex differences in children's friendships. American Sociological Review, vol.43, 237-250.

Freeman, L. C., Freeman, S. C., & Michaelson, A. G. (1988). Journal of Social and Biological Structures, 11, 415-425.

French, D., & Waas, G. (1985). Behavior problems of peer-neglected and peer-rejected elementary-age children: Parent and teacher perspectives. Child Development, 56, 246-252.

Freud, S. (1949). An Outline of Psychoanalysis. NY: Norton.

Furman, W. (1989). The Friendship Relationship Questionnaire. Unpublished instrument.

Furman, S. (1989). The development of children's social networks. In D. Belle (Ed.), Children's Social Networks and Social Supports (pp. 151-172). NY, NY: John Wiley & Sons Ltd.

Furman, W., & Buhrmester, D. (1985). Children's perceptions of personal relationships in their social networks. Developmental Psychology, 21, 1016-1024.

Furman, W., & Masters, J. C. (1980). Peer interactions, sociometric status, and resistance to deviation in young children. Developmental Psychology, 16, 229-236.

Gottman, J. M. (1983). How children become friends. Monographs of the Society for Research in Child Development, 48(3. Serial no. 201.

Green, K. D., Forehand, R., Beck, S. J., & Vosk, B. (1980). An assessment of the relationship among measures of children's social competence and children's academic achievement. Child Development, 51, 1149-1156.

Gronlund, N. E. (1959). Sociometry in the Classroom. NY: Harper & Brothers.

Hales, S. (1979). Developmental Processes of Self-esteem. Paper presented at the Society for Research in Child Development, San Francisco, California, March 15-18.

Hallinan, M. T. (1979). Structural effects on children's friendships and cliques. Social Psychology Quarterly, 42, 43-54.

Hart, J. W. (1971). Socioeconomic sociometry and socioeconometry: Moreno's sociodynamic effect revisited. NY: Beacon House.

Harter, S. (1985). Manual for the Self-Perception Profile for Children. Colorado: University of Denver.

Harter, S. (1983). Developmental perspectives on the self-system. In E. M. Heatherington (Ed.), Handbook of Child Psychology, vol. IV, (pp. 103-197). NY: Wiley.

Hartup, W. W. (1970). Peer interaction and social organization. In P. H. Mussen (Ed.), Carmichael's Manual of Child Psychology, vol. II (3rd ed., pp. 361-456). NY: Wiley.

Hartup, W. W. (1975). The origins of friendship. In M. Lewis, & L. A. Rosenblum (Eds.), Friendship and Peer Relations (pp. 11-26). NY: Wiley.

Hartup, W. W. (1978). Children and their friends. In H. McGurk (Ed.), Issues in Childhood Social Development (pp.130-170). London: Methuen.

Hartup, W. W. (1983). Peer relations. In E. M Heatherington (Ed.), Handbook of Child Psychology, vol. IV (pp. 103-197). NY: Wiley.

Hartup, W. W., (1993). Conflict and friendship relations. In C. U. Shantz & W. W. Hartup (Eds.), Conflict in child and adolescent development. Cambridge, UK: Cambridge University Press.

Hartup, W. W., Laursen, B., Stewart, M. I., & Eastenson, A. (1988). Conflict and the friendship relations of young children. Child Development, 59, 1590-1600.

Hennessy Blum, M. (1991). Patterns of Peer Relations. Master's Thesis. University of New Hampshire.

Homans, G. (1954). The cash posters: A study of a group of working girls. American Sociological Review, 16, 724-733.

Howes, C. (1983). Patterns of friendship. Child Development, 54, 1041-1053.

Howes, C. (1988). Peer interaction of young children. Monographs of the Society for Research in Child Development, 53(1, Serial No. 217).

Hunter, F. T., & Youniss, J. (1982). Changes in functions of three relations during adolescence. Developmental Psychology, 18, 806-811.

Huff, C. R. (1989). Youth gangs and public policy, Crime and Delinquency, vol. 35, 524-537.

Ide, J. K., Parkerson, J., Haertel, G. D., & Walberg, H J. (1981). Peer group influence on educational outcomes: A quantitative synthesis. Journal of Educational Psychology, 73, 472-484.

Johnson, D. W., & Johnson, R. T. (1975). Learning Together and Alone. Englewood Cliffs, NJ: Prentice-Hall.

Kupersmidt, J. B. (1983, April). Predicting delinquency and academic problems from childhood peer status. Paper presented at the biennial meeting of the Society for Research in Child Development, Detroit.

Kupersmidt, J. B., & Coie, J. D. (1985). The prediction of delinquency and school-related problems from childhood peer status. Unpublished manuscript, Duke University, Durham, NC.

Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of poor peer relationships in the development of disorder. In S. R. Asher and J. D. Coie (Eds.), Peer Rejection in Childhood (pp. 274-308). NY: Cambridge University Press.

Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? Child Development, 61, 1081-1100.

Ladd, G. W., & Asher, S. R. (1985). Social skills training and children's peer relations. In L. L'Abate & M. A. Milan (Eds.), Handbook of Social Skills Training Research (pp. 219-244). NY: Wiley.

Ladd, G. W., Price, J. M., & Hart, C. H. (1990). Preschoolers' behavioral orientations and patterns of peer contact: Predictive of peer status? In S. R. Asher and J. D. Coie (Eds.), Peer Rejection in Childhood (pp. 90-115). NY: Cambridge University Press.

Lamb, M. E., & Nash, A. (1989). Infant-mother attachment, sociability, and peer competence. In T. J. Berndt & G. W. Ladd (Eds.), Peer Relationships in Child Development (pp. 219-245). NY: Wiley.

Lever, J. (1976). Sex differences in the games children play. Social Problems, 23, 478-487.

Lewis, M., & Rosenblum, L. A. (1975). Friendship and Peer Relations. NY: Wiley.

Mallory, B., & New, R. (in press). Social constructivist theory and principles of inclusion: Challenges for early childhood special education. Journal of Special Education.

Mannarino, A. P. (1978). Friendship patterns and self-concept in preadolescent males. Journal of Genetic Psychology, 133, 105-110.

Mannarino, A. P. (1980). The development of children's friendships. In H. C. Foot, A. J. Chapman, and J. R. Smith (Eds.), Friendship and Social Relations in Children (pp. 45-63). NY: John Wiley & Sons Ltd.

Marshall, H. R., & McCandless, B. R. (1957). A study in prediction of social behavior of preschool children. Child Development, 28, 149-159.

Masters, J. C., & Furman, W. (1981). Popularity, individual friendship selection, and specific peer interaction among children. Developmental Psychology, 17, 344-350.

Matas, L., Arend, R., & Sroufe, L.A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. Child Development, 49, 547-556.

Moreno, J. L. (1934). Who Shall Survive? Washington: Nervous and Mental Disease Publishing Company.

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. Psychological Bulletin, vol. 113, 99-128.

Olmsted, M. S., & Hare, A. P. (1978). The Small Group, (2nd ed.). NY: Random House.

Olson, S. L. (1992). Development of conduct problems and peer rejection in preschool children: A social systems analysis. Journal of Abnormal Child Psychology, 20, 327-350.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102: 3, 357-389.

Phillips, B. N., & D'Amico, L. H. (1956). Effects of cooperation and competition on the cohesiveness of small face-to-face groups. Journal of Educational Psychology, 47, 65-70.

Price, J. M., & Dodge, K. A. (1989). Peers' contributions to children's social maladjustment: Description and intervention. In T. J. Berndt and G. W. Ladd, Peer Relationships In Child Development (pp. 341-370). NY: John Wiley & Sons, Inc.

Robins, L. N. (1966). Deviant Children Grown Up: A sociological and psychiatric study of sociopathic personality. Baltimore, Maryland: The Williams & Wilkins Co.

Roff, M., Sells, S., & Golden, M. (1972). Social Adjustment and Personality Development in Children. Minneapolis: University of Minnesota Press.

Roff, J. D., & Wirt, R. D. (1984). Childhood aggression and social adjustment as antecedents of delinquency. Journal of Abnormal Child Psychology, 12, 111-126.

Rogosch, F. A., & Newcomb, A. F. (1989). Children's perceptions of peer reputations and their social reputations among peers. Child Development, 60, 597-610.

Roopnarine, J. L., Adams, G. R., & Mounts, N. S. (1988). Sociometric status and peer group dynamics. Child Psychiatry and Human Development, 18, 169-180.

Savin-Williams, R. C. (1979). Dominance hierarchies in groups of early adolescents. Child Development, 50, 142-151.

Schwartz, D., Dodge, K. A., Coie, J. D. (1993). The emergence of chronic peer victimization in boys' play groups. Child Development, 64, 1755-1772.

Schweitzer, R. D., Set-Smith, M., & Callan, V. J. (1992). The relationship between self-esteem and psychological adjustment in young adolescents. Journal of Adolescence, 15, 83-97.

Scofield, R. W. (1960). Task productivity of groups of friends and non-friends. Psychological Reports, 6, 459-460.

Shaffer, D. R. (1989). Developmental Psychology Childhood and Adolescence. CA: Brooks/Cole Publishing Company.

Shantz, D. W. (1986). Conflict, aggression, and peer status: An observational study. Child Development, 57, 1322-1332.

Sharabany, R., Gershoni, R., & Hoffman, J. E. (1981). Girlfriend, boyfriend: Age and sex differences in intimate friendship. Developmental Psychology, 17, 800-808.

Shaw, M. E., & Shaw, L. M. (1962). Some effects of sociometric grouping upon learning in a second grade classroom. Journal of Social Psychology, 57, 453-458.

Sroufe, L. A. (1990). Psychopathology and developmental deviation. In D. Cicchetti (Ed.), Rochester Symposium in Developmental Psychopathology.

Sroufe, L. A. (1983). Individual patterns of adaptation form infancy to preschool. In M. Perlmutter (Ed.), Development and Policy Concerning Children with Special Needs. Minnesota symposium on Child Psychology (vol. 16, pp. 41-81). Hillsdale, NJ: Lawrence Erlbaum.

Strayer, F. F. (1980). Social ecology of the preschool peer group. In W. A. Collins (Ed.), Development of Cognition, Affect, and Social Relations (pp. 165-196). Hillsdale, NJ: Lawrence Erlbaum Associates.

Strayer, F. F., & Strayer, J. (1976). An ethological analysis of social agonism and dominance relations among preschool children. Child Development, 47, 980-989.

Suessmuth, P. (1978). The communication game: Broken squares. Ideas for Training Managers and Supervisors, (pp. 22-234). San Diego, CA: University Associates, Inc.

Thrasher, F. M. (1967). The Gang (rev. ed., J. F. Short). Chicago: The University Chicago Press. (Original work published in 1927).

Tietjen, A. (1982). The social networks of preadolescent children in Sweden. International Journal of Behavioral Development, 5, 11-130.

Vandell, D. L., & Hembree, S. H. (1993). Peer social status and friendship: Predictors of children's social and academic adjustment. Paper presented at the Biennial Meeting of Society for Research in Child Development, New Orleans, Louisiana, March 1993.

Vandell, D. L., & Mueller, E. C. (1980). Peer play and friendships during the first two years. In H. C. Foot, A. J. Chapman, & J. R. Smith (Eds.), Friendship and Social Relations In Children. NY: Wiley.

Wylie, R. (1979). The Self Concept (vol. 2): Theory and research on selected topics. Lincoln: University of Nebraska Press.

PLEASE NOTE

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

158-162, CHILD BEHAVIOR CHECKLIST FOR AGES 4-18
163-172, Friend Relationship Questionnaire (1 Person)
173-175, Sociometric Interview
176-182, Self-Perception Profile for Children
183-195, AN OBSERVATIONAL SYSTEM FOR CODING REINFORCING, NEUTRAL AND PUNISHING INTERACTIONS AMONG CHILDREN

University Microfilms International

Appendix F

Occupational Classification	Punch		Columns 13-15 R's Respondent	43-45 R's Father	53-55 R's Spouse
	Occupation	Prestige Scores			
PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS					
Accountants	001	57	64	75	57
Architects	002	71	11	7	4
Computer specialists					
Computer programmers	003	51*	21	2	12
Computer systems analysts	004	51*	8	1	11
Computer specialists, n.e.c.	005	51*	1	1	3
Engineers					
Aeronautical and astronautical engineers	006	71	3	8	1
Chemical engineers	010	67	8	8	7
Civil engineers	011	68	16	27	21
Electrical and electronic engineers	012	69	21	34	25
Industrial engineers	013	54	11	15	18
Mechanical engineers	014	62	22	27	11
Metallurgical and materials engineers	015	56		2	
Mining engineers	020	62	1	3	2
Petroleum engineers	021	67	2	1	
Sales engineers	022	51	11	3	2
Engineers, n.e.c.	023	67		2	8
Farm management advisers	024	54	6		3
Foresters and conservationists	025	54	8	3	3
Home management advisers	026	54*			
Lawyers and judges					
Judges	030	76*	2	3	
Lawyers	031	76	20	30	23
Librarians, archivists, and curators					
Librarians	032	55	15		13
Archivists and curators	033	66			
Mathematical specialists					
Actuaries	034	55*	1	2	1
Mathematicians	035	65	1		1
Statisticians	036	55	1	1	
Life and physical scientists					
Agricultural scientists	042	56		2	1
Atmospheric and space scientists	043	68*	1		
Biological scientists	044	68	3		5
Chemists	045	69	15	15	11
Geologists	051	67	3	1	3
Marine scientists	052	68*			
Physicists and astronomers	053	74		1	3
Life and physical scientists, n.e.c.	054	68			1

Occupational Classification	Punch		Columns 13-15 N's	43-45	33-35
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Operations and systems researchers and analysts	055	51*	7	3	1
Personnel and labor relations workers	056	56	29	8	21
Physicians, dentists, and related practitioners					
Chiropractors	061	60		4	2
Dentists	062	74	10	17	3
Optometrists	063	62	1	3	2
Pharmacists	064	61	12	21	6
Physicians, including osteopaths	065	82	12	43	23
Podiatrists	071	37	1		
Veterinarians	072	60	4	5	1
Health practitioners, n.e.c.	073	51*			
Nurses, dietitians, and therapists					
Dietitians	074	52	5		3
Registered nurses	075	62	132	2	92
Therapists	076	37	17	1	12
Health technologists and technicians					
Clinical laboratory technologists and technicians	080	61*	24		8
Dental hygienists	081	61	5		3
Health record technologists and technicians	082	61*	2		1
Radiologic technologists and technicians	083	61*	13		5
Therapy assistants	084	37			1
Health technologists and technicians, n.e.c.	085	47	13	1	4
Religious workers					
Clergymen	086	69	31	61	16
Religious workers, n.e.c.	090	56	6	4	2
Social scientists					
Economists	091	57	10	4	8
Political scientists	092	66*			
Psychologists	093	71	6	1	5
Sociologists	094	66	1	1	1
Urban and regional planners	095	66*	2		
Social scientists, n.e.c.	096	66			
Social and recreation workers					
Social workers	100	52	40	5	23
Recreation workers	101	49	8	1	

Occupational Classification	Punch		Columns 13-15	43-45	33-35
			N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Teachers, college and university					
Agriculture teachers	102	78	2		1
Atmospheric, earth, marine, and space teachers	103	78			
Biology teachers	104	78	2	2	1
Chemistry teachers	105	78	3	1	2
Physics teachers	110	78	2	1	
Engineering teachers	111	78	1	1	1
Mathematics teachers	112	78	4		3
Health specialists teachers	113	78	7		2
Psychology teachers	114	78	1	1	1
Business and commerce teachers	115	78	2		2
Economics teachers	116	78	3		1
History teachers	120	78	2	2	1
Sociology teachers	121	78	1		1
Social science teachers, n.e.c.	122	78	1	1	
Art, drama, and music teachers	123	78	4		2
Coaches and physical education teachers	124	78	1	3	2
Education teachers	125	78	1		2
English teachers	126	78	6	2	3
Foreign language teachers	130	78	3		1
Home economics teachers	131	78			
Law teachers	132	78			
Theology teachers	133	78		1	1
Trade, industrial, and technical teachers	134	78	5	1	1
Miscellaneous teachers, college and university	135	78	3	1	
Teachers, college and university, subject not specified	140	78	6	1	8
Teachers, except college and university					
Adult education teachers	141	43*	9	1	5
Elementary school teachers	142	60	232	18	143
Pre-kindergarten and kindergarten teachers	143	60*	22		22
Secondary school teachers	144	63	152	21	83
Teachers, except college and university, n.e.c.	145	43	32	2	28
Engineering and science technicians					
Agriculture and biological technicians, except health	150	47*	4	2	1
Chemical technicians	151	47*	9	7	13
Draftsmen	152	56	21	19	14
Electrical and electronic engineering technicians	153	47*	25	3	15
Industrial engineering technicians	154	47*	2	1	1
Mechanical engineering technicians	155	47*	1	1	1
Mathematical technicians	156	47*		1	
Surveyors	[illegible]	53	3	5	2
Engineering and science technicians, n.e.c.	[illegible]	47	24	7	15

Occupational Classification	Punch		Columns 13-15 / 43-45 / 33-35 N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Technicians, except health, engineering, and science					
Airplane pilots	163	70	2	3	4
Air traffic controllers	164	43*	5	2	2
Embalmers	165	52			
Flight engineers	170	47*		1	1
Radio operators	171	43	2		2
Tool programmers, numerical control	172	47*			
Technicians, n.e.c.	173	47	5	1	1
Vocational and educational counselors	174	51	10	1	7
Writers, artists, and entertainers					
Actors	175	55	4		1
Athletes and kindred workers	180	51	8	4	10
Authors	181	60	4		
Dancers	182	38	3	1	
Designers	183	58	16	8	9
Editors and reporters	184	51	20	14	14
Musicians and composers	185	46	21	12	7
Painters and sculptors	190	56	21	5	8
Photographers	191	41	8	6	3
Public relations men and publicity writers	192	57	18	3	9
Radio and television announcers	193	51	2	1	2
Writers, artists, and entertainers, n.e.c.	194	51*	13	6	2
Research workers, not specified	195	51*	6	5	5
Professional, technical, and kindred workers--allocated	196	51*			
MANAGERS AND ADMINISTRATORS, EXCEPT FARM					
Assessors, controllers, and treasurers, local public administration	201	61*	3	4	
Bank officers and financial managers	202	72	52	35	27
Buyers and shippers, farm products	203	41	1	15	2
Buyers, wholesale and retail trade	205	50	10	7	11
Credit men	210	49	8	2	9
Funeral directors	211	52*	4	6	6
Health administrators	212	61*	13	1	7
Construction inspectors, public administration	213	41	1	1	4
Inspectors, except construction, public administration	215	41	5	11	7
Managers and superintendents, building	216	38	19	6	11
Office managers, n.e.c.	220	50*	40	11	16
Officers, pilots, and pursers; ship	221	60	2	17	2
Officials and administrators; public administration, n.e.c.	22	61	38	27	17
Officials of lodges, societies, and unions	22	58	5	8	7

Occupational Classification	Punch		Columns 13-15; 43-45; 33-35 R's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Postmasters and mail superintendents	224	58	7	11	2
Purchasing agents and buyers, n.e.c.	225	48	27	10	20
Railroad conductors	226	41	8	21	3
Restaurant, cafeteria and bar managers	230	39	60	55	36
Sales managers and department heads, retail trade	231	50	32	15	36
Sales managers, except retail trade	233	50*	27	28	24
School administrators, college	235	61*	7	1	4
School administrators, elementary and secondary	240	60*	32	18	23
Managers and administrators, n.e.c.	245	50	471	846	431
Managers and administrators, except farm--allocated	246	50*			
SALES WORKERS					
Advertising agents and salesmen	260	42	4	5	6
Auctioneers	261	32	1	1	1
Demonstrators	262	28	4		4
Hucksters and peddlers	264	18	31	23	18
Insurance agents, brokers, and underwriters	265	47	66	62	46
Newsboys	266	15	5	5	1
Real estate agents and brokers	270	44	42	39	29
Stock and bond salesmen	271	51	7	9	6
Salesmen and sales clerks, n.e.c.	280	34	304	152	212
Sales representatives, manufacturing industries	281	49	19	19	8
Sales representatives, wholesale trade	282	40	12	16	8
Sales clerks, retail trade	283	29	47	11	40
Salesmen, retail trade	284	29*	11	11	7
Salesmen of services and construction	285	34*	7	2	5
Sales workers--allocated	296	34*			
CLERICAL AND KINDRED WORKERS					
Bank tellers	301	50	30	3	25
Billing clerks	303	45	12	2	12
Bookkeepers	305	48	216	24	129
Cashiers	310	31	138	4	77
Clerical assistants, social welfare	311	36*			
Clerical supervisors, n.e.c.	312	36*	31	6	18
Collectors, bill and account	313	26	4		2
Counter clerks, except food	314	36*	36	1	17
Dispatchers and starters, vehicle	315	34	4	9	4
Enumerators and interviewers	320	36*	7		5
Estimators and investigators, n.e.c.	321	35*	25	9	23
Expeditors and production controllers	323	36*	22	9	12
File clerks	325	30	29	1	16

Occupational Classification	Punch		Columns 13-15	43-45	33-35
			N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Insurance adjusters, examiners, and investigators	326	48	10	7	8
Library attendants and assistants	330	41	10		8
Mail carriers, post office	331	42	32	39	18
Mailhandlers, except post office	332	36*	12		5
Messengers and office boys	333	19	9	1	3
Meter readers, utilities	334	36*	6	5	2
Office machine operators					
Bookkeeping and billing machine operators	341	45	17		10
Calculating machine operators	342	45	7		4
Computer and peripheral equipment operators	343	45	15	2	14
Duplicating machine operators	344	45	1		1
Keypunch operators	345	45	32		24
Tabulating machine operators	350	45			2
Office machine operators, n.e.c.	355	45	16		4
Payroll and timekeeping clerks	360	41	26	6	14
Postal clerks	361	43	33	37	23
Proofreaders	362	36*	5	2	2
Real estate appraisers	363	43	1	1	1
Receptionists	364	39	43	2	33
Secretaries					
Secretaries, legal	370	46	30		19
Secretaries, medical	371	46	29		12
Secretaries, n.e.c.	372	46	448	2	298
Shipping and receiving clerks	374	29	49	22	24
Statistical clerks	375	36	22	7	7
Stenographers	376	43	34	1	7
Stock clerks and storekeepers	381	23	38	24	32
Teacher aides, except school monitors	382	36	38		20
Telegraph messengers	383	30			1
Telegraph operators	384	44	8	7	5
Telephone operators	385	40	70		39
Ticket, station, and express agents	390	35	7	6	7
Typists	391	41	84	1	40
Weighers	392	36	7	4	5
Miscellaneous clerical workers	394	36	72	17	47
Not specified clerical workers	395	36	136	23	84
Clerical and kindred workers--allocated	396	36*			
CRAFTSMEN AND KINDRED WORKERS					
Automobile accessories installers	401	47*			
Bakers	402	34	9	32	5
Blacksmiths	403	36	2	36	2
Boilermakers	404	31	5	13	2
Bookbinders	405	31	5	4	4
Brickmasons and stonemasons	410	36	21	52	14

Occupational Classification	Punch		Columns 13-15 N's	43-45	33-35
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Brickmasons and stonemasons, apprentices	411	36	1	3	
Bulldozer operators	412	33	12	19	14
Cabinetmakers	413	39	3	24	5
Carpenters	415	40	122	281	97
Carpenter apprentices	416	40			1
Carpet installers	420	47	4		7
Cement and concrete finishers	421	32	7	11	8
Compositors and typesetters	422	38	20	26	13
Printing trades apprentices, except pressmen	423	40			1
Cranemen, derrickmen, and hoistmen	424	39	25	33	16
Decorators and window dressers	425	37	7	3	4
Dental laboratory technicians	426	47	2	3	6
Electricians	430	49	47	66	37
Electrician apprentices	431	41			
Electric power linemen and cablemen	433	39	11	9	9
Electrotypers and stereotypers	434	38		1	
Engravers, except photoengravers	435	41	2	3	2
Excavating, grading and road machine operators, except bulldozer	436	33	32	43	30
Floor layers, except tile setters	440	40		1	1
Foremen, n.e.c.	441	45	146	291	141
Forgemen and hammermen	442	36	1	6	3
Furniture and wood finishers	443	29	5	6	3
Furriers	444	35		1	
Glaziers	445	26		5	3
Heat treaters, annealers, and temperers	446	36		1	
Inspectors, scalers, and graders: log and lumber	450	31	3	7	1
Inspectors, n.e.c.	452	31	22	31	10
Jewelers and watchmakers	453	37	5	10	6
Job and die setters, metal	454	48	8	12	1
Locomotive engineers	455	51	11	39	11
Locomotive firemen	456	36	1	4	
Machinists	461	48	49	93	44
Machinist apprentices	462	41	1		1
Mechanics and repairmen					
Air conditioning, heating, and refrigeration	470	37	11	11	15
Aircraft	471	48	8	20	7
Automobile body repairmen	472	37	13	14	11
Automobile mechanics	473	37	71	113	70
Automobile mechanic apprentices	474	37		3	
Data processing machine repairmen	475	34*	3	3	8
Farm implements	480	33	1	4	2
Heavy equipment mechanics, including diesel	481	33*	66	74	59
Household appliance and accessory installers and mechanics	482	33*	5	15	6
Loom fixers	483	30		5	1
Office machines	484	34	8	2	5

Occupational Classification	Punch		Columns 13-15 | 43-45 | 33-35 N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Radio and television	485	35	6	9	11
Railroad and car shop	486	37	4	45	7
Mechanic, except auto, apprentices	491	41			
Miscellaneous mechanics and repairmen	492	35	26	12	13
Not specified mechanics and repairmen	495	35	12	8	10
Millers; grain, flour, and feed	501	25	1	4	1
Millwrights	502	40	5	24	8
Molders, metal	503	39	4	19	4
Molder apprentices	504	39			
Motion picture projectionists	505	34	2	2	1
Opticians, and lens grinders and polishers	506	51	3	1	1
Painters, construction and maintenance	510	30	43	83	19
Painter apprentices	511	30			
Paperhangers	512	24		5	1
Pattern and model makers, except paper	514	39	3	7	2
Photoengravers and lithographers	515	40	5	7	6
Piano and organ tuners and repairmen	516	32	2	2	1
Plasterers	520	33	1	16	2
Plasterer apprentices	521	33			
Plumber and pipe fitters	522	41	48	72	31
Plumber and pipe fitter apprentices	523	41	1	1	2
Power station operators	525	39	1	7	3
Pressmen and plate printers, printing	530	40	14	14	13
Pressmen apprentices	531	40			
Rollers and finishers, metal	533	36	3	6	4
Roofers and slaters	534	31	10	10	10
Sheetmetal workers and tinsmiths	535	37	19	20	12
Sheetmetal apprentices	536	37			2
Shipfitters	540	36	1	2	
Shoe repairmen	542	33	1	11	1
Sign painters and letterers	543	30	2	6	2
Stationary engineers	545	35	21	59	11
Stone cutters and stone carvers	546	33		2	1
Structural metal craftsmen	550	36	13	13	12
Tailors	551	41	10	33	9
Telephone installers and repairmen	552	39	20	13	22
Telephone linemen and splicers	554	39	8	6	4
Tile setters	560	36	3	3	2
Tool and die makers	561	42	19	34	14
Tool and die maker apprentices	562	41	1		
Upholsterers	563	30	5	9	6
Specified craft apprentices, n.e.c.	571	41			
Not specified apprentices	572	41	2		
Craftsmen and kindred workers, n.e.c.	575	47	3	16	7
Former members of the Armed Forces	580	47*	26	21	8
Craftsmen and kindred workers--allocated	586	47*			
Current members of the Armed Forces	590[a]	47*	85	86	86

[a]The code for current members of the Armed Forces, not normally included in the U.S. Census definition of the civilian population labor force.

Occupational Classification	Punch		Columns 13-15	43-45	33-35
			N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
OPERATIVES, EXCEPT TRANSPORT					
Asbestos and insulation workers	601	28	3		3
Assemblers	602	27	142	65	89
Blasters and powdermen	603	32	2	1	
Bottling and canning operatives	604	23	10	6	6
Chainmen, rodmen, and axmen; surveying	605	39	1		
Checkers, examiners, and inspectors; manufacturing	610	36	91	35	66
Clothing ironers and pressers	611	18	26	4	13
Cutting operatives, n.e.c.	612	26	39	23	24
Dressmakers and seamstresses, except factory	613	32	33	2	8
Drillers, earth	614	27	8	14	7
Dry wall installers and lathers	615	27	7	3	3
Dyers	620	25		5	1
Filers, polishers, sanders, and buffers	621	19	17	22	11
Furnacemen, smeltermen, and pourers	622	33	7	16	4
Garage workers and gas station attendants	623	22	27	11	6
Graders and sorters, manufacturing	624	33	6	3	3
Produce graders and packers, except factory and farm	625	19	7	3	7
Heaters, metal	626	33	1	2	1
Laundry and dry cleaning operatives, n.e.c.	630	18	29	9	18
Meat cutters and butchers, except manufacturing	631	32	13	28	14
Meat cutters and butchers, manufacturing	633	28	8	10	13
Meat wrappers, retail trade	634	19	4	1	5
Metal platers	635	29	7	5	1
Milliners	636	33	4	1	1
Mine operatives, n.e.c.	640	26	46	296	40
Mixing operatives	641	29	8	8	5
Oilers and greasers, except auto	642	24	4	7	1
Packers and wrappers, n.e.c.	643	19	87	16	38
Painters, manufactured articles	644	29	16	14	10
Photographic process workers	645	36	3	2	4
Precision machine operatives					
Drill press operatives	650	29	11	9	3
Grinding machine operatives	651	29	7	11	14
Lathe and milling machine operatives	652	29	12	12	9
Precision machine operatives, n.e.c.	653	29*	9	4	6
Punch and stamping press operatives	656	29	25	15	13
Riveters and fasteners	660	29	2	7	7
Sailors and deckhands	661	34	7	10	2
Sawyers	662	28	11	34	10
Sewers and stitchers	663	25	175	12	105
Shoemaking machine operatives	664	32*	4	3	5
Solderers	665	29	8	1	4
Stationary firemen	666	33	13	32	5

Occupational Classification	Punch		Columns 13-15 | 43-45 | 33-35 N's		
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Textile operatives					
Carding, lapping, and combing operatives	670	29	2	2	
Knitters, loopers, and toppers	671	29	8		7
Spinners, twisters, and winders	672	25	28	8	10
Weavers	673	25	6	7	4
Textile operatives, n.e.c.	674	29	12	14	6
Welders and flame-cutters	680	40	64	67	62
Winding operatives, n.e.c.	681	29	10	3	2
Machine operatives, miscellaneous specified	690	32*	156	116	91
Machine operatives, not specified	692	32*	38	41	29
Miscellaneous operatives	694	32*	57	41	49
Not specified operatives	695	32	52	120	44
Operatives, except transport--allocated	696	32*			
TRANSPORT EQUIPMENT OPERATIVES					
Boatmen and canalmen	701	37		1	
Bus drivers	703	32	32	16	18
Conductors and motormen, urban rail transit	704	28		7	1
Deliverymen and routemen	705	28	61	104	47
Fork lift and tow motor operatives	706	29	29	17	20
Motormen; mine, factory, logging camp, etc.	710	27	4	6	2
Parking attendants	711	22	2	2	1
Railroad brakemen	712	35	1	14	5
Railroad switchmen	713	33	6	11	7
Taxicab drivers and chauffeurs	714	22	15	23	6
Truck drivers	715	32	143	179	124
Transport equipment operatives--allocated	726	29			
LABORERS, EXCEPT FARM					
Animal caretakers, except farm	740	29	13	1	3
Carpenters' helpers	750	23	9	2	3
Construction laborers, except carpenters' helpers	751	17	71	109	42
Fishermen and oystermen	752	30	6	9	2
Freight and material handlers	753	17	71	83	45
Garbage collectors	754	17	17	11	5
Gardeners and groundskeepers, except farm	755	23	28	40	22
Longshoremen and stevedores	760	24	5	12	3
Lumbermen, raftsmen, and woodchoppers	761	26	11	50	9
Stockhandlers	762	17	39	10	13
Teamsters	763	12		12	1
Vehicle washers and equipment cleaners	764	17	7	13	6
Warehousemen, n.e.c.	770	20	18	9	8
Miscellaneous laborers	780	17*	38	98	18
Not specified laborers	78[illegible]	17	29	95	22
Laborers, except farm--allocated	[illegible]	17*			

Occupational Classification	Punch		Columns 13-15 N's	43-45	33-35
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
FARMERS AND FARM MANAGERS					
Farmers (owners and tenants)	801	41	180	1856	138
Farm managers	802	44	6	48	2
Farmers and farm managers--allocated	806	41*			
FARM LABORERS AND FARM FOREMEN					
Farm foremen	821	35	2	17	2
Farm laborers, wage workers	822	18	65	210	40
Farm laborers, unpaid family workers	823	18	5	3	3
Farm service laborers, self-employed	824	27		3	1
Farm laborers, farm foremen, and kindred workers--allocated	846	19*			
SERVICE WORKERS, EXCEPT PRIVATE HOUSEHOLD					
Cleaning service workers					
Chambermaids and maids, except private household	901	14	33		10
Cleaners and charwomen	902	12	60	10	21
Janitors and sextons	903	16	115	78	92
Food service workers					
Bartenders	910	20	17	16	8
Busboys	911	22	6	2	1
Cooks, except private household	912	26	118	34	72
Dishwashers	913	22	20	1	6
Food counters and fountain workers	914	15	35		19
Waiters	915	20	199	5	91
Food service workers, n.e.c., except private household	916	22	44		27
Health service workers					
Dental assistants	921	48	15		11
Health aides, except nursing	922	48*	25	2	20
Health trainees	923	36*	2		
Midwives	924	23			
Nursing aides, orderlies, and attendants	925	36	136	10	72
Practical nurses	926	42	62	1	40
Personal service workers					
Airline stewardesses	931	36	4		4
Attendants, recreation and amusement	932	15	7	2	5
Attendants, personal service, n.e.c.	933	14	14	1	5
Baggage porters and bell hops	934	14	3	4	1
Barbers	935	38	7	47	9
Boarding and lodging housekeepers	940	22	3	1	2
Bootblacks	941	09		1	
Child care workers, except private households	942	25	29		8

Occupational Classification	Punch		Columns 13-15 N's	43-45	33-35
	Occupation	Prestige Scores	Respondent	R's Father	R's Spouse
Elevator operators	943	21	2	4	
Hairdressers and cosmetologists	944	33	74	1	45
Personal service apprentices	945	14*			
Housekeepers, except private households	950	36	8	1	7
School monitors	952	22*	5		1
Ushers, recreation and amusement	953	15			
Welfare service aides	954	14	9		3
Protective service workers					
Crossing guards and bridge tenders	960	24	5	6	2
Firemen, fire protection	961	44	25	29	17
Guards and watchmen	962	22	47	40	26
Marshals and constables	963	46		4	1
Policemen and detectives	964	48	38	68	30
Sheriffs and bailiffs	965	55	8	10	3
Service workers, except private household--allocated	976	25			
PRIVATE HOUSEHOLD WORKERS					
Child care workers, private household	980	23	23		10
Cooks, private household	981	18	6		5
Housekeepers, private household	982	25	25	1	10
Laundresses, private household	983	18	3		
Maids and servants, private household	984	18	157	2	49
Private household workers--allocated	986	18*			
(Not applicable: 99 Unemployed, No father substitute, Not married, Disabled, Retired, No answer, and Don't know)	BK	BK	1001	1464	4155

Appendix G

Principal Consent Form

To Investigator M. Hennessy Blum, M.S.,

As principal of the _____Elementary School, I am in support of the research being conducted by the University of New Hampshire on children's peer relationships. I also support the cooperation of the teacher(s) involved with the research project. I understand that children's grades are in no way affected by this study.

_____ _____

Date Principal's Signature

Appendix H

UNIVERSITY OF NEW HAMPSHIRE

Department of Psychology
Conant Hall
Durham, New Hampshire 03824-3567
(603) 862-2360

April 15, 1991

Dear Parents,

The School District, the principal at your child's school, , and your classroom teacher, are supporting a follow-up study on children's relationships with other children in school. As you may recall, in the spring of 1989 your child and you participated in the initial phase of the study. Several months ago, you received a summary letter describing the major findings of the study. We found that peer relationships in the classroom are associated with children's adjustment. But, it remains unclear whether early peer relationships determine later adjustment. We are asking for your support with the follow-up study so that the contributions of peer relationships on children's development can be determined. This research will help guide the development of educational strategies to improve social, academic, and emotional development in children.

We will ask participating children a series of questions about the games that they like to play, their self perception, and classmates with whom they like and do not like to work and play. Answers will be marked on private answer sheets. We will collect the answers and will keep all information private. Once questions are completed, children will be asked to make drawings of their friends. Nothing that your child does will become part of his or her school record. In order to gain a better understanding of your child, parents (mother and/or father) will be asked to complete a series of questions describing their child's behavior.

All information will be absolutely confidential. As in the past, all family names will be given an identification code number to maintain maximum confidentiality. No penalty will be given to parents or children who decide to withdraw from the study at any time, or who choose not to answer certain questions.

We are working closely with your child's teacher to make sure that these sessions do not interrupt important classroom learning activities. We hope that all of the children in this classroom will participate. If you have any questions about the project, please feel free to call us at 862-3168. Thank you for your consideration.

Sincerely,

Mary Hennessy Blum, M.S.
Graduate Student

Kathleen McCartney, Ph.D
Associate Professor

UNIVERSITY OF NEW HAMPSHIRE

Department of Psychology
Conant Hall
Durham, New Hampshire 03824-3567
(603) 862-2360

May 1, 1991

Dear Parents,

The School District, the principal at your child's school, , and your classroom teacher, are supporting a follow-up study on children's relationships with other children in school. We would like to invite your child and you to participate in the follow-up study. The initial phase of the study occurred in 1989 with children currently in your child's classroom. The major findings of the 1989 study were that peer relationships in the classroom are associated with children's adjustment. But, it remains unclear whether early peer relationships determine later adjustment. We are asking for your support with the follow-up study so that the contributions of peer relationships on children's development can be determined. This research will help guide the development of educational strategies to improve social, academic, and emotional development in children.

We will ask participating children a series of questions about the games that they like to play, their self perception, and classmates with whom they like and do not like to work and play. Answers will be marked on private answer sheets. We will collect the answers and will keep all information private. Once questions are completed, each participating child will be observed and videotaped with classroom friends. Towards the end of the play session, children will be asked to make drawings of their friends. Nothing that your child does will become part of his or her school record. In order to gain a better understanding of your child, parents (mother and/or father) will be asked to complete a series of questions describing their child's behavior.

All information will be absolutely confidential. All family names will be given an identification code number to maintain maximum confidentiality. No penalty will be given to parents or children who decide to withdraw from the study at any time, or who choose not to answer certain questions.

We are working closely with your child's teacher to make sure that these sessions do not interrupt important classroom learning activities. We hope that all of the children in this classroom will participate. If you have any questions about the project, please feel free to call us at 862-3168. Thank you for your consideration.

Sincerely,

Mary Hennessy Blum, M.S.
Graduate Student

Kathleen McCartney, Ph.D
Associate Professor

UNIVERSITY OF NEW HAMPSHIRE

Department of Psychology
Conant Hall
Durham, New Hampshire 03824-3567
(603) 862-2360

PLEASE RETURN THIS PORTION IN THE ENCLOSED SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE THANK YOU.

I give my permission for my child and me to participate in this project.

Child's Name

Child's Birth Date

Phone Number

Address

Parent's Signature Date

Appendix I

The Communication Game: Broken Squares

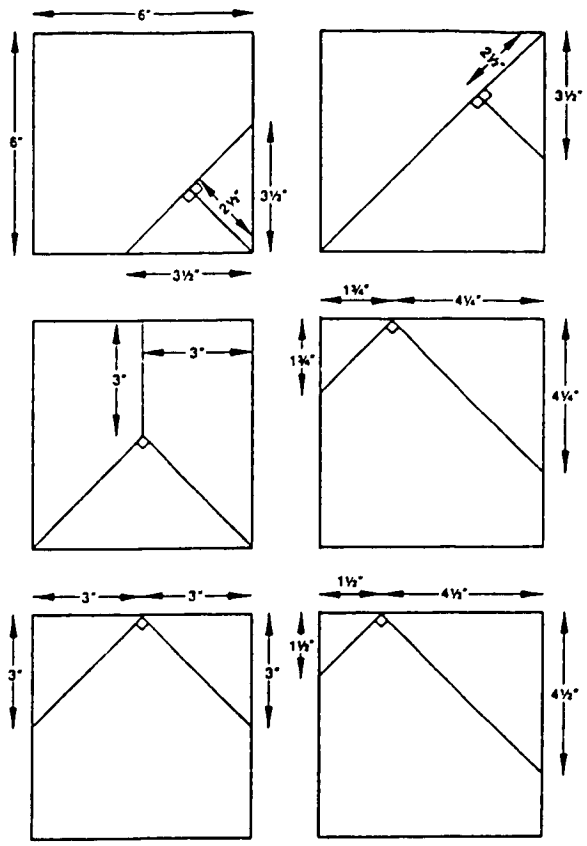

Figure 38.5. Measurements for making the six six-inch combined squares and rectangles

Directions For Broken Squares - Communication Game

1. Gather children together around a table with chairs.

2. Begin video taping.

3. "Before we begin the activity, I am going to identify everyone's identification number for the camera. (Identify each subjects from left to right so that each subject can be easily paired with their ID number.) This is school ID _____ with subjects #___, #___, #___, and #___.

4. "Ok, I am now going to explain the activity and rules for the activity. The name of this game is called broken squares. Each of you will get an envelope with puzzle pieces in it. Your first task is to get each person in your group to exchange pieces from the envelopes until everyone makes a perfect 6 inch square. The rules throughout the game are (1) there is no talking and (2) there is no taking from each other - you can only give to each other. After all of you are finished with the first task raise your hands."

5. "Good, your next task is to get each person in your group to make a triangle out of each of the squares in front of you. Remember the rules -- no talking and no taking. When you are finished raise your hands."

6. "Good Work, the game is over."

7. Stop taping.

---

[1]A reader of this article, E. O. Malott, Jr., Vice President for Research & Development, American Management Association, pointed out the history of this activity to me. He wrote, "that it fails to give credit to Alex Bavelas as the originator of the techniques described." He went on to say, "I would cite for you the description appearing on pages 493-506 in the book, *Group Dynamics*, by Dorwin Cartwright and Alvin Zander, published by Row Peterson & Co. in 1953. In turn, that chapter cites the material as having been originally presented in the *Journal of the Acoustical Society of America*, 1950, No. 22, pages 725-730. Also, it was presented in a chapter of the same title in *The Policy Sciences*, David Lerner and Harold D. Lasswell (Editors), Stanford University Press, 1951. In addition, you will find a related description of the first experiment in Chapter 14 of *Managerial Psychology* by Harold J. Leavitt, published by the University of Chicago Press, 1958 (reissued in a Phoenix paperback edition, 1962)." [See also Bavelas, The five squares problem: An instructional aid in group cooperation. *Studies in Personnel Psychology*, 1973, *5*, 29-38. An adapted version appears in J. W. Pfeiffer & J. E. Jones (Eds.), *A Handbook of Structured Experiences for Human Relations Training* (Volume I, Rev.). La Jolla, Calif.: University Associates, 1974.—EDITOR]